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Oil Merger Bankers Say Control Will Rest with Oil Executives

By Roger B. Stafford
N. P. N. Staff Writer

NEW YORK, March 13.

BLAIR & CO., Inc., which has taken a leading part in oil company consolidations and financing in recent years, is contemplating no further mergers in the immediate future. This is the word of Hunter S. Marston, vice-president of Blair & Co., who with Elisha Walker, president of the Blair banking house, has been one of the leaders in consolidations of the last year. Mr. Walker is in Europe.

Wall Street is filled with rumors of more large oil mergers and of recent mergers taking other producing and refining companies into enlarged corporations. Most of this talk is romance, Mr. Marston said this week, but he admitted that the way is always open for amalgamation when one company is believed to be a profitable supplement to another.

Tide Water-Associated Deal

The latest deal in which Blair & Co. has taken a prominent part is the consolidation of the Tide Water Oil Co. and the Associated Oil Co., details of which were published in National Petroleum News for March 10. Blair & Co. and the Chase Securities Corp. were managers of a syndicate of bankers which handled this merger. Their interest was solely that of banking, Mr. Marston said, and the formation of a greater oil company, one with distribution from coast to coast as well as abroad, and with both domestic and foreign production, was not thought of, he added.

"Is it the intention of these bankers to gain control of many of the important oil companies and operate them?" Mr. Marston was asked.

"We are bankers. We form the vehicle by which companies that complement, or supplement, each other may be brought together for their mutual benefit. We are content to let the oil men manage the properties as that is their work and they perform it adequately, we believe."

BECAUSE of the rumors of more oil mergers and the talk of another big, nationally-operating company being built up through consolidations of existing properties, National Petroleum News sent Roger B. Stafford, staff writer, to interview Hunter S. Marston, vice-president of Blair & Co., the New York banking house which has put through most of the oil mergers of the past few years. His ideas as to the conditions under which mergers may be forthcoming are given in the accompanying article.

Mr. Marston said that banker representation on oil company boards of directors was merely to protect their financial interests and to keep in close contact with their investments. He again said such representation was not to control operations.

There have been rumors in the week since the announcement of the Tide Water-Associated merger that this group may seek to acquire Mid-Continent companies in order to strengthen the group's position in the southwest and middle west, and that it might possibly seek some South American producing properties. Mr. Marston scouted this idea as being a possibility of the near future but said the charter of the new Tide Water Associated Oil Co. made possible such acquisition. Whatever may be done is not now under consideration, he asserted.

The Tide Water-Associated deal is regarded by the Blair company as ideal. The Tide Water company has extensive distribution with an inadequate crude supply, Mr. Marston pointed out. The Associated has good distribution in this country and abroad and in addition has a crude supply in excess of its needs. This crude may be shipped to Tide Water refineries or it may be refined on the Pacific coast and products shipped to Tide Water distributors.

Will Operate as in Past

For the present the operations of the Tide Water and Associated will be continued as in the past. Operating plans are being worked out and some announcement may be made shortly, Axtell J. Byles, president of the Tide Water and the Tide Water Associated, told the writer. Any announcement probably will be withheld until after March 20 when deposition must be made of stock of both Tide Water and Associated for exchange for stock in the new holding corporation.

The 500,000 shares of the holding corporation which are to be floated by the banking syndicate, are being traded on the New York Club Market on a "when issued" basis. The stock was not received as well as expected. It is understood to have been underwritten at 27 and was offered at 30. It quickly declined to 25½ but closed the week at 26⅜, which price even would mean a loss to the underwriting syndicate.

The exchange basis appears attractive to holders of both Tide Water and Associated stock. Tide Water holders are to receive one and a third shares of Tide Water Associated no par common stock for each no par share of Tide Water held. If the contemplated dividend rate of the holding company is maintained they would receive $1.60 a year, whereas they have been receiving $1 from Tide Water but under a recent increase would have received $1.50.

The Associated holders are to receive one third share of Tide Water Associated 6 per cent preferred and one share of no par common, dividends on which will total $3.20, whereas they have been receiving only $2 per share on Associated.

Before the recent increase in Tide Water's dividend rate the exchange would have been relatively equal for the Tide Water and Associated stockholders. Against these facts it is pointed out that whatever money Tide Water has paid for a large part of its crude in the past has gone out of the company, while, under the new arrangement, the money will go to a sister operating subsidiary and the Tide Water Associated holders will benefit.

Put Associated on the Market

The idea for the consolidation grew out of the merger of the Standard Oil Co. of California and the Pacific Oil Co. By that merger, 280,000 shares of Associated held by the Standard of California were thrown on the market because of legal restrictions against the holding of stock in a competing company by the Standard Oil Co. of California. Standard interests, it is said in New York financial circles, have always thought well of the Associated properties and when the opportunity to get a hand in Associated was presented in acceptable terms it met with favor.

The Standard Oil Co. of New Jersey owns a little more than 40 per cent of the Tide Water common stock and will therefore have a substantial interest in the new Tide Water Associated Oil Co. In the new company old Tide Water stockholders will hold 2,690,321 shares and old Associated holders 2,240,000 shares. This is in addition to the block of 500,000 shares underwritten by the bankers and part of which will be offered the public.

On the board of the Tide Water Associated are three members from the Associated interests—Henry W. de Forest, Paul Shoup and W. F. Humphrey—and three from Tide Water—Mr. Byles, Robert McKelvy and E. L. Shea. The seventh member is George White of Marietta, O., former Democratic national chairman. The Blair and Chase houses are not represented as they are on the board of the Barnsdall Corp. and Pan American Petroleum & Transport Co., other consolidations they effected. The Blair company is interested in the California Petroleum Corp. and through the American International Corp. in the Simms Petroleum Co.

Other Blair Financing

Blair has also handled the financing of numerous other companies including Sinclair, Standards of New Jersey and New York, Vacuum, and Oil Well Supply Co. They have done practically all the banking for E. L. Doheny from the early days of the Mexican Petroleum Co.

The latest merger rumor in New York involves the Standard Oil Co. of New York and the General Petroleum Corp. of California. Confirmation or denial of this report could not be obtained but, at a brokerage house in close touch with the Standard Oil companies, it was said no further mergers involving Standard companies were "in the air."

It is pointed out that the General would serve well the interests of the Standard of New York, which has a large distributing business in the Orient. A large part of the goods sold in the Far East by the New York company are now being purchased in California and the acquisition of the General would give the New York company its own source of supply.

The General has its own production and three refineries. It also has distribution in all of the Pacific coast states and is expanding.

There is still talk that The Texas Co. would like to acquire the Phillips Petroleum Co. which has good production in Mid-Continent fields and is one of the largest natural gasoline manufacturers east of California, if not the largest.

Rumor of Other Mergers

Simms Petroleum Co. is mentioned as a good company to link with the Barnsdall Corp. which acquired the Waite Phillips Co. a few months ago. Simms directors have not been satisfied with the terms drafted by bankers in the past, it is said, and have turned down all offers. The American International Corp.'s interest is only an eighth and therefore it is impossible for that corporation to swing a deal.

Skelly Oil Co. is another name that frequently enters the romancing, being linked in rumors with first one and then another whose producing, refining and marketing business it would help. It is said Skelly directors would have to see something unusually good ahead before they would enter into any combination.

Coming Meetings

American Association of Petroleum Geologists, The Baker Hotel, Dallas, Tex., March 25, 26, 27.

Petroleum Safety Council, Houston, Tex., latter part of March. Dates not set yet.

National Petroleum Marketers Association, Congress Hotel, Chicago, April 6, 7, 8.

Petroleum Division, American Chemical Society, Tulsa, April 5, 6, 7, 8, 9.

State Executives Club, Congress Hotel, Chicago, April 6, 7, 8.

American Oil Burner Association, Book-Cadillac Hotel, Detroit, Mich., April 6, 7, 8.

American Society of Mechanical Engineers, Oil and Gas Power Conference, Mayo Hotel, Tulsa, April 23, 24.

Association of Natural Gasoline Manufacturers, Mayo Hotel, Tulsa, May 5, 6.

Wisconsin Independent Oil Jobbers, Association Hotel Conway, Appleton, Wis., May 12.

National Oil Scouts Association of America, Gunter Hotel, San Antonio, Tex., May 17, 18.

Minnesota Petroleum Association and Wisconsin Independent Oil Jobbers Association, joint meeting, Hotel Stoddard, La Crosse, Wis., June 16.

Continental Oil Co. proposes considerable extensions, it was said in an authoritative quarter. Acquisition of the Texhoma Oil & Refining Co. put the company in an excellent position to expand its markets in the Mid-Continent. The company, it was said, will develop its New Mexican producing properties this year and may enlarge its Artesia, N. M., refinery. The natural flow of its products is to the south and southeast of Artesia and Wichita Falls, where the Texhoma refinery is situated. It was regarded as likely that Continental distribution may be pushed through to the Mexican border and the Gulf coast.

Confident of 1926

Wall Street is confident that 1926 will be a highly profitable year for the oil industry, although a few close observers are fearful of the large stocks of gasoline and the maintenance of a fairly high rate of crude production. One observer analyzed the Bureau of Mines statistics for December and January and pointed out as ominous the fact that the net decrease of all oil inventories in December was 5,399,476 barrels while in January it was only 2,549,834 barrels.

"The excessively large stocks of gasoline on hand are a menace to the oil price structure," this observer said in his analysis. "It should be borne in mind also that crude oil production is increasing (the Bureau of Mines reports a decrease in January), and that a number of new producing areas have recently been discovered contiguous to the Gulf Coast. These new pools give promise of being important factors in the crude oil market."

No Petroleum Exposition To Be Held in 1926

TULSA, March 15.—At last week's meeting of the executive committee of the International Petroleum Exposition it was decided not to hold an exposition in 1926. Although nothing definite has been decided for the future, the committee hopes to put on a show in the fall of 1927. Election of officers for the ensuing year has been set for April 11.

Several factors probably entered into the committee's decision not to have an exposition this year. One is the fact that the A. P. I. meeting is scheduled for Tulsa in December and another is the attitude of the major supply companies which did not exhibit last fall and which have contended that the show should not be held oftener than every two years and preferably every three years.

It is reported that a number of the larger companies of this character have promised their cooperation in making the exposition a success if it is postponed until next year. It is the plan of the committee to have the exposition assume a more dignified and a more strictly technical character. It is said there will be no more King Petroleum, no more oil princesses, no more parades and no more carnival concessions inside the grounds.

Is Made Vice President of North American Car Corp.

Victor H. Smith

CHICAGO, March 15.—Victor H. Smith has been made vice president of the North American Car Corp. Mr. Smith has severed his official relationship with the Lion Oil Refining Co., with whom he has been connected as vice president.

Prior to his association with the Lion Oil Refining, he was secretary of the Imperial Oil Refining Co., of Ardmore, Okla., previous to which he had eight years of railroad traffic and operating experience. The Lion Oil Refining Co., under Mr. Smith's management, has grown from a small beginning with $100,000 capital to its present prominent position in the independent oil refining business with $6,000,000 capital.

The North American Car Corp. was organized by Henry H. Brigham of Chicago and began business with small capital in 1907 and has grown to one of the largest car operating concerns in the country. The company operates refrigerator and tank cars, owning and operating over 3000 cars. It has plants at Chicago, New Orleans, Tulsa, Okla. and Coffeyville, Kans. The company not only operates tank cars and refrigerator cars, but also builds and repairs all kinds of freight car equipment. They also operate oil storage and terminal facilities at Chicago, New Orleans and Tulsa, doing a general warehousing business in liquid products, including petroleum products, molasses, creosote, vegetable oils and chemicals. These plants are operated in connection with the company's tank cars and present plans involve the expansion of its activities in this line.

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Paraffin Accumulation is Special Problem In Texas Panhandle Wells

By Paul Wagner
N. P. N. Staff Writer

OPERATING conditions in the Texas Panhandle region, which is now getting its first taste of active oil development, call for a word of caution against "boomer" tactics and ill-advised attempts to exploit the area without taking proper cognizance of engineering problems to be met.

Luckily, the greater part of the Panhandle producing area, when considered as a whole, is closely held by a few strong interests. Parts of the territory, however, include relatively small leaseholds; and these divisions of the general district will find operations more or less intensive.

Experience has taught that logs of offsetting wells in the Panhandle producing horizons seldom resemble each other, even remotely, and that a variety of conditions exists to influence the success or failure of an operation.

Wells of large flush production are the exception, so far, in the Panhandle. Should this condition continue, as it probably will, the disappointment of the shoestring operator will be keen. Further than this, such operators are not equipped nor disposed to give the local problems of the district the care-engineering study necessary for the successful operation of wells.

Many Pump from Start

Although wells of the Texas Panhandle will prove super-pumpers and may be expected to produce consistently over long periods of time, when properly handled, many of them must go on the beam from the start. The more flashy wells of the granitic wash producing horizon, in which original completions of the Panhandle region were made, will call for even greater engineering study than the subsequent wells yielding up crude from a dolomitic limestone pay.

Apparently a set of peculiar conditions governed the deposition of the two productive zones mentioned. An understanding of these conditions, insofar as they may be measured, is of importance to successful operations in the territory.

The granitic wash which yielded the original oil of the Panhandle is technically known as an arkosic pay. It is found down the north slope of the buried granite ridge which is the controlling structural feature of the area. When the granite wash was deposited down the north slope of the ridge, it apparently was not transported far enough for it to be reworked by the forces eroding it, hence its character remains virtually unchanged.

Dolomitic limestone pay was found as exploration progressed northward and away from the ridge. This limestone forms a cap over thin shales, limes and sands below it. All these formations probably were deposited simultaneously with the erosion and flank deposition of the granitic wash.

As a result of the conditions mentioned there apparently has come about the intricate and irregular fingering in and out of formations, which exists in this part of the Panhandle section, together with interbedding of these various materials.

New Type of Problems

The effect has been to bring about underground conditions representing entirely new types of engineering problems, both in the drilling and producing stages of development. These can be solved only to a limited extent by applying the experience met with in other fields. Hence there exists a very serious and wholly dangerous situation under which to start an active drilling campaign of boom characteristics.

Until those companies who are equipped financially to do so develop sufficient knowledge of controlling factors to point the way to intelligent activities, the operator whose string of 8-inch is secured by a mortgage on his wife's jewels had best move slowly in the Panhandle, taking his cue from "the boys who can foot the bills."

As more development is carried ahead and fresh knowledge is added the situation will clarify, permitting regularity and precision of development under conditions of satisfactory profit to conservative operators.

Major interests, such as the Gulf Production Co., the Prairie Oil & Gas Co., the Phillips Petroleum Co., Marland Oil Co., of Texas, and other principal operators in the Panhandle, are undertaking through large property ownerships to control extensive acreage of the type that will permit of slow development over a period of years.

Conservation to Pay Off

Developments carried forward after such a fashion as contemplated by these interests will pay large returns in the Texas Panhandle. In this connection, the steady, consistent production records of such wells as have been properly completed in the Panhandle indicate the rewards to come from painstaking and intelligent operations. It is those who become stampeded into hectic development by frenzied activities of "boomers" who are due for an awakening.

Operators engaging in line-drilling campaigns in the Texas Panhandle face grief from badly finished holes, loss of holes entirely from gas conditions, etc., because that kind of development would result in the failure to take cognizance of vital engineering problems.

Even in the event of wells being finished for smaller daily yields than would be possible under better operating practice, the producing costs per barrel of oil and the longevity of production would suffer materially as a result of hasty operations.

Stimulation of production by means of swabbing and pumping is a delicate operation in the Panhandle district, and, unless met with an open mind, may prove disastrous to such unwise operators as may try to apply indiscriminately the methods that have proved so effective, in their estimation, in getting a quick return on their money in other fields.

Infrequent Swabbing Best

One operating company found in its wells that infrequent swabbing, which served the purpose merely of keeping tubing free from the normal unavoidable accumulation of paraffin, gave a maximum of favorable results.

Any attempt to increase the rate of swabbing served not to aid production but rather to increase the precipitation of paraffin and thus cut down the oil yield, in some instances as much as 50 per cent. The explanation? You guess; but, be that as it may, the problem is one for close engineering study.

Under conditions now being met with in the Panhandle it appears dangerous to permit the interjection of free gas into a well when such gas does not carry with it at least a part of its full load of oil, because the consequent expansion tends to lower pressures in the hole, increasing the precipitation or solidification of the paraffin so prolific in Panhandle crude.

It may be that the future will show the desirability, however, of taking advantage of an individual well gas condition through regulation of its propulsive force, or a peculiar water condition at the oil pay level may require attention in some specific manner.

The foregoing are part and parcel of the engineering phases of development to come in for attention. Meantime, operators in the Panhandle might learn a lesson from Californians who have overcome comparable difficulties with reasonable success.

Much wasted effort and useless expenditure would be saved if Panhandle

operators would core ahead from the top of the lime into the producing horizon, thereby determining the actual conditions with which they must contend in each individual well. They then would be in position to complete their wells with a maximum of efficiency.

Casing should be set in Panhandle wells so as to utilize to the greatest extent the expulsive value of gas without suffering any more than is necessary the disadvantages that its uncontrolled production would cause.

Coring permits the acquisition of knowledge on which to base judgments on the requirements of an individual well, whatever they may be, thereby making possible a proper finishing job.

Almost the whole experience of Panhandle operations to date points to the conclusion that hasty completion of wells in the territory is disastrous.

It is unfortunate from the viewpoint of coring operations that rotary drilling is not practiced in the Panhandle, but it is possible that some coring tool may be temporarily installed in a cable tool rig when the lime formation is reached, thereby permitting a "peep" at the producing horizon before attempting to complete a well. This accomplished, operators would be enabled to set pipe and liner intelligently to obtain a maximum of gas pressure and face of pay formation, in addition to exercising judgments affecting producing methods thereafter.

Operations in the Panhandle region now total roundly 150 drilling wells and rigs up. Probably 100 additional rigs will be operating by June 1, next. In the meantime, enough territory has been virtually proved for production that fully 125 producing wells may be expected to result from the 150 operations now under way.

Estimates vary with regard to the daily average production of the Panhandle this spring and summer, the more conservative students of the producing situation forecasting 18,000 to 20,000 barrels daily of marketed oil by June 1. Others foresee as much as 30,000 barrels daily, potential production, by that time. Potential production is now rated around 12,000 barrels daily with some 7,000 to 8,000 barrels daily being handled.

Broadly speaking, the wells in northern Carson county, which produce from the granitic wash formation, average about 200 barrels initial production and frequently decline to as low as 75 barrels daily in a few weeks. These wells produce 38 gravity oil.

Wells in southern Hutchinson county, which yield 40 gravity oil, will average 400 barrels daily, initial production, and do not decline as rapidly as those in the granitic wash. Two or three of the wells in southern Hutchinson county made more than 1,000 barrels, initial production, after shots. Up to the present these wells have generally declined to about 300 barrels daily of fairly steady production, with possibilities that these yields may be somewhat increased under favorable operating conditions.

Gasoline Yield from Panhandle Oil Approximates 29 Per Cent

By Paul Wagner
N. P. N. Staff Writer

HOUSTON, March 15

A TEST run of Texas Panhandle crude of 40.2 degrees A. P. I. gravity, shows that on straight run distillation about 35 per cent of crude naphtha yield is obtained; 10 per cent of rerun distillate; 5 per cent of gas oil and 43.5 per cent of lubricant distillate.

The crude naphtha shows 85 per cent of approximately 60 gravity gasoline, which with deduction for treating is equivalent to about 29 per cent on the crude oil run; initial boiling point 122 degrees and end point 435 degrees.

When the crude is run to coke an additional 6 per cent of gasoline is obtained, in which case the paraffin distillate amounts to but 28 per cent.

The distillation sheet figures follow:

Test on 40.2 Gravity Crude from Amarillo District

Gravity....40.2
Flash....Room Temp.
Fire....Room Temp.
C. T....56
B. S. and W.... .20
Sul.... .470
Color....Green to Dark Green

Cuts	%	Temp.	Grav.	Ct	
1	5	175	82.0		
2	5	217	74.0		
3	5	250	65.1		35% Cr. Naph.
4	5	290	59.2		
5	5	343	54.3		Grav. 60.1
6	5	390	49.7		
7	2½	420	46.5		
8	2½	457	44.2		
9	5	503	42.0		10% Cr. R. R. Gr. 40.9
10	5	538	39.8	18	Tr. 10# 66 Acid Gr. 40.8
11	5	563	38.7	38	5% Gas Oil, Gr. 38.7 C. T. 38
12	5	580	39.5	44	
13	5	600	38.8	54	
14	5	596	40.5	54	43.50% Cracked Dist.
15	5	594	41.7	52	Grav. 39.1
16	5	596	40.2	52	C. T. 55
17	5	599	40.3	50	
18	5	595	39.5	58	
19	5	602	39.4	58	
20	3½	629	37.2	62	
21	1	680	....	....	1% Fuel

Cuts	%	Temp.	Grav.		
1	5	279	69.7		17½% Cr. Naph.
2	5	339	57.3		7.61 % Crude
3	5	399	50.5		Gr. 57.6
4	2.50	428	....		
				CT	
5	2.50	461	....	..	17½% G. O.
6	5	501	41.8	..	Gr. 40.9
7	5	534	39.8	..	7.61% Crude
8	5	555	38.1	20	

65.00 Btm. Pitch....Gr. 34.3
28.28 Crude....Fl. 295
Vis. @100.... 53
C. T.... 66

5.50% Coke and Loss
3.61% Coke by Weight

35.00% St. Crude Naph. Grav. 60.1
7.61% Cracked Naph. Grav. 57.6
42.61% Crude Naph. Grav. 59.3

Tr. 5# 66 Acid, Gr. 58.8

STEAM DISTILLATION

Cuts	%	Grav.		
1	10	78.8		
2	10	71.3		
3	10	65.9		
4	10	61.8	85% Gasoline	
5	10	58.6		
6	10	55.7	Grav. 60.2	
7	5	53.6		
8	5	51.9	36.22% Crude	
9	5	50.6		
10	5	49.3		
11	5	47.4		
15% Naph. Btms. Grav. 42.3			6.39% Crude	

Init.	122	
10	176	
20	196	
30	215	
40	233	Over to 221—84 %
50	251	
60	276	Over to 284—63½%
70	299	
80	327	Over to 392—94 %
90	365	
95	403	
Final	435	

10.00% Tr. R. R. Grav. 40.8
6.39% Naph. Btms. Grav. 42.3
16.39% R. R. Stk. Grav. 41.2

64.00% Test Dist. Grav. 43.0
Tr. 8# 66 Acid
10.49% Crude
36.00% Gas Oil, Gr. 38.3
5.90%

Grav. 43.0
Lamp Test—Better than Calif.
Color —Not W. W. Naph. Btms. requires treating before rerunning

CRUDE PERCENTAGES

Gasoline	36.32	
W. W.	10.49	
Gas Oil	18.51	Grav. 39.4
Paraffin	28.28	C. T.
		Sul.
Fuel	1.00	
Coke and Loss	5.50	
	100.00	

Bartles-Maguire Buys Refinery In East Chicago, Indiana

By Ward K. Halbert
N. P. N. Staff Writer

CHICAGO, March 13

BARTLES-MAGUIRE Oil Co., a Milwaukee jobbing firm, this week closed a deal giving it possession of the Interstate Gasoline Co.'s refinery at East Chicago, Ind. It is a 2500-barrel skimming plant situated on a 20-acre tract of land by Forsythe avenue with 700 feet of frontage on the Lake Michigan Ship Channel. It is only a short distance from Sinclair Refining Co.'s East Chicago refinery and in the neighborhood of Standard Oil Co. of Indiana's Whiting plant and the spot where Roxana Petroleum Corp., proposes to build a refinery in Hammond.

The monetary consideration in the transaction is not being made public by authorities in the Bartles-Maguire organization. Persons familiar with the values of such real estate and equipment in that locality estimate the plant to be worth between half and three-quarters of a million dollars. The deal was handled by Chicago bankers acting for Bartles-Maguire with Colwell & Tumulty of New York, receivers for the former owners of the plant. It was built originally as an interest of C. N. Haskell, first elected governor of Oklahoma.

The ownership of the property, before Bartles-Maguire Oil Co., went into the matter, was somewhat complicated. The company that built the refinery was known as the Interstate Gasoline Co. But the majority of the stock of that organization was held by the Consolidated Oil & Refining Co., of New York. It was with the Consolidated Oil & Refining Co. that Bartles-Maguire negotiated. Joseph H. Tumulty (private secretary to the late President Woodrow Wilson), is the sole receiver for the Consolidated Oil & Refining Co., and also joint receiver with H. H. Colwell for the Interstate Gasoline Co.

When the plant was built something over four years ago, Charles J. Greenstreet, the inventor, was interested in it. In fact the plant was built for the purpose of giving the Greenstreet Cracking Process a try-out on a commercial scale. Governor Haskel was interested in the Greenstreet Process. But legal difficulties arose, the details of which are not important now. It is enough to say that the plant was known to be an exceedingly well constructed one and that it operated less than a month, all told.

Plant in Good Shape

The fact that the plant has been idle for three years or more is no discredit to it. It was not due to engineering defects or flaws in the plan of construction. It was a matter of litigation that halted the progress of the venture until the financial backers of it were unwilling to go ahead with it, and the popular interest in the Greenstreet process died down.

The custodian of the property during these years of idleness has been William Hildebrandt, employed by the original management as superintendent. Bartles-Maguire has employed Mr. Hildebrandt to continue as plant superintendent.

The new management expects the plant to be turning out straight-run gasoline before the middle of April. Graver Corp., of East Chicago, Ind., is preparing to install the first 1000-barrel standard unit of the Jenkins cracking process immediately. Company officials say that the cost of the land and the refinery and all the improvements they propose to make in the establishment will represent an investment, when complete, of $1,750,000.

For the present at least, the refinery will operate on crude oil brought to East Chicago in tank cars. A. G. Maguire, president of Bartles-Maguire Oil Co., stated on Saturday afternoon that crude would be obtained in this way, pointing out that it was to be a cracking plant and did not require crude oil to operate on. Charging stocks for the cracking still will, of course, be brought to the plant by rail as gas oil or fuel oil bought in the open market. Prairie Pipe Line Co.'s line from Oklahoma to Whiting, Ind., lies along one border of Bartles-Maguire's refinery site. The Sinclair Refining Co.'s line from the field is nearby also. But no arrangement has been made to buy crude from either of them.

An Ideal Situation

Mr. Maguire states that he would not care to own a refinery not on water front. And moreover the presence of the two big pipe lines in the neighborhood make the location more desirable because the time might come when he could use the pipe line facilities. However, for the time being, he has no such purpose in mind. The chief advantage of the location now is that Bartles-Maguire will be able to barge gasoline and lubricating oil from the refinery to Milwaukee which is the center of the major portion of the company's distribution.

There are no financiers or other oil interests involved in the deal with the Milwaukee firm. Bartles-Maguire is sole owner and will operate the plant under its own name. The refinery office is being opened this week at 901 Blum building, 624 South Michigan Ave., Chicago. A. G. Maguire himself will be in the Chicago office a great deal, and he insinuates that Henry J. Stolz, vice president, will spend a major portion of his time in the Chicago office.

This is the first Wisconsin oil company to go into the business of refining crude oil. The project has been discussed by more than one of those jobbers in the Badger State where Independence in the oil business has been extremely successful with a large number of companies.

The Wadhams Oil Co. of Milwaukee has the only thing in the state that resembles a refinery and it might be used to run crude oil but was built and is used for nothing but re-running gasoline bought in the open market to bring it up to the company's advertised specifications.

In the company's house organ, the "Arrow Bee" the official spokesman of the organization, says in part:

"At least $250,000 will be spent immediately for additional equipment and improvements. When completed the refinery will produce three grades of gasoline, one knockless, besides kerosene, furnace oil distillate, fuel oil and lubricating oils. The combined storage capacity of all the Bartles-Maguire plants is now about six millions of gallons. A complete compounding plant for lubricating oils will be built in connection with the East Chicago refinery."

A. G. Maguire, president of the Bartles-Maguire Oil Co., states that the company always will be a Wisconsin corporation and that the head office will remain in Milwaukee where practically all of its stockholders reside. During the World War Mr. Maguire was director of Oil Prices and Licenses for the United States government. He was also a member of the National Petroleum War Service Committee, of which the late A. C. Bedford of the Standard Oil Co. of New Jersey was chairman.

Modify Leasing Law

WASHINGTON, March 15.—The House of Representatives committee on public lands has ordered a favorable report made on two bills, both introduced by Representative Sinnott of Oregon, at the suggestion of the Department of the Interior, modifying the national leasing law and the law pertaining to the mining of potassium.

As the law stands, Mr. Sinnott explains, only one coal lease and three oil leases are permissible to a lessor in a given state. The maximum area allowed is 2560 acres but only 640 acres in known oil territory. It frequently happens that an applicant exhausts his three oil leases without coming anywhere near covering his 640 acres. The House committee has agreed to a bill making acreage the only limit. The same has been done with the potassium bill, which has also been brought into harmony with the national leasing law.

Compilation Of Mid-Continent Refinery Operations

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National Petroleum News

Mid-Continent Refinery Operations Week Ended March 12 (By Telegraph)

	Kansas	%Change Previous Week	Oklahoma	%Change Previous Week	No. & Cent. Texas	%Change Previous Week	No. La.-Ark.	%Change Previous Week	Total	%Change Previous Week	Totals Week Ended Feb. 12
Plants Reporting	23		46		41		14		124		124
Daily Cap. (Bbls.)	98,200		165,900		144,300		51,700		460,100		460,100
Da. Av. Crude Runs.	47,486	+ 4.8	91,783	+ 4.9	57,692	+ 0.4	36,274	— 3.4	233,235	+ 2.4	246,197
Da. Av. Other Oils	1,277	—66.0	5,483	+77.4	2,200	—68.7	—254	.....	8,706	—40.3	5,773
GASOLINE—Gallons											
Stocks March 5	13,767,552		58,526,160		17,176,819		5,829,549		96,300,080		84,959,053
Prod. 3-5 to 3-12	6,901,497	—10.5	13,446,931	+ 0.4	6,521,939	+ 0.8	2,544,375	— 4.5	29,414,742	— 2.7	29,626,639
Ship. 3-5 to 3-12	7,345,998	+10.7	15,175,293	+27.2	6,638,225	+ 4.0	2,195,691	— 9.4	31,355,207	+14.6	28,633,704
Stocks March 12	14,323,051	— 3.0	56,797,798	— 3.0	17,060,533	— 0.7	6,178,233	+ 6.0	94,359,615	— 2.0	85,951,988
Ratio Sales to Prod.	106.4%		112.9%		101.8%		86.3%		106.6%		96.6%
KEROSENE—Gallons											
Stocks March 5	1,383,445		4,864,799		1,411,296		468,122		8,127,662		8,214,138
Prod. 3-5 to 3-12	1,070,479	+ 5.5	2,442,024	+11.0	1,114,025	—20.7	413,815	—21.6	5,040,343	— 2.1	5,341,611
Ship. 3-5 to 3-12	1,490,571	+83.7	1,789,880	—28.8	1,293,722	— 0.7	444,105	+ 4.5	5,018,278	— 0.7	5,588,749
Stocks March 12	963,353	—30.4	5,516,943	+13.4	1,231,599	—12.7	437,832	— 6.5	8,149,727	+ 0.3	7,967,000
Ratio Sales to Prod.	139.2%		73.3%		116.1%		107.3%		99.6%		104.6%
STOVE DISTILLATE—Gallons											
Stocks March 5	699,073		2,221,043		186,544		4,452		3,111,112		7,554,010
Prod. 3-5 to 3-12	597,286	+11.6	991,009	+116.1	283,997	+26.6	7,224	—58.5	1,879,516	+63.5	1,864,896
Ship. 3-5 to 3-12	705,297	— 5.3	1,401,273	+71.1	195,766	—14.5	.....	—100.0	2,302,336	+27.1	2,934,445
Stocks March 12	591,062	—15.5	1,810,779	—18.5	274,775	+47.3	11,676	+162.3	2,688,292	—13.6	6,484,461
Ratio Sales to Prod.	118.1%		141.4%		68.9%		.....		122.5%		157.4%
GAS OIL—Gallons											
Stocks March 5	4,930,167		34,091,249		6,072,174		5,656,862		50,750,452		48,758,242
Prod. 3-5 to 3-12	1,204,121	—14.7	2,112,049	+93.7	244,176	—33.7	1,542,418	—19.7	5,102,764	+ 6.5	5,773,725
Ship. 3-5 to 3-12	1,032,420	+ 9.3	845,073	—56.1	340,182	— 5.1	1,656,330	—26.8	3,874,005	—29.4	4,501,613
Stocks March 12	5,101,868	+ 3.5	35,358,225	+ 7.3	5,976,168	— 1.6	5,542,950	— 2.0	51,979,211	+ 2.4	50,130,354
Ratio Sales to Prod.	85.7%		40.0%		139.3%		107.4%		75.9%		76.6%
FUEL OIL—Gallons											
Stocks March 5	9,777,873		42,154,230		20,013,976		6,220,138		78,166,217		101,722,414
Prod. 3-5 to 3-12	3,738,888	+ 5.8	7,688,134	+ 1.0	7,360,364	+ 2.8	6,216,018	— 2.8	25,003,404	+ 1.2	26,883,463
Ship. 3-5 to 3-12	4,559,555	— 0.2	8,832,924	—22.7	8,538,303	+ 1.3	6,869,798	—12.9	28,800,580	—10.9	31,992,438
Stocks March 12	8,957,206	— 8.4	41,009,440	— 2.7	18,836,037	— 5.9	5,566,358	—10.5	74,369,041	— 4.9	96,613,329
Ratio Sales to Prod.	121.9%		114.9%		116.0%		110.5%		110.8%		119.0%

Gasoline Stocks Fall for First Time Since Early December

By Telegraph
TULSA, March 16

FOR the first time since the first week in December, 124 Mid-Continent refiners from whom reports are gathered by National Petroleum News reduced their gasoline stocks during the week ended March 12. Stocks were reduced 2,000,000 gallons to 94,359,615 gallons representing 20 days' supply at the current rate of shipments.

Shipments of gasoline increased materially in every district except north Louisiana and Arkansas. In the entire area shipments rose 4,000,000 gallons to 31,355,207 gallons as compared with 27,370,744 gallons in the week ended March 5. Production of gasoline was reduced slightly to 29,414,742 gallons at all plants. The greatest increase in shipments was noted in Oklahoma amounting to 3,000,000 gallons. During recent weeks the greatest accumulation of gasoline has been in Oklahoma, other districts advancing at a much slower rate.

Kerosene shipments virtually balanced with production in the field as a whole stocks increasing only 22,000 gallons or less than three cars. Stocks increased 700,000 gallons in Oklahoma but were reduced in all other states.

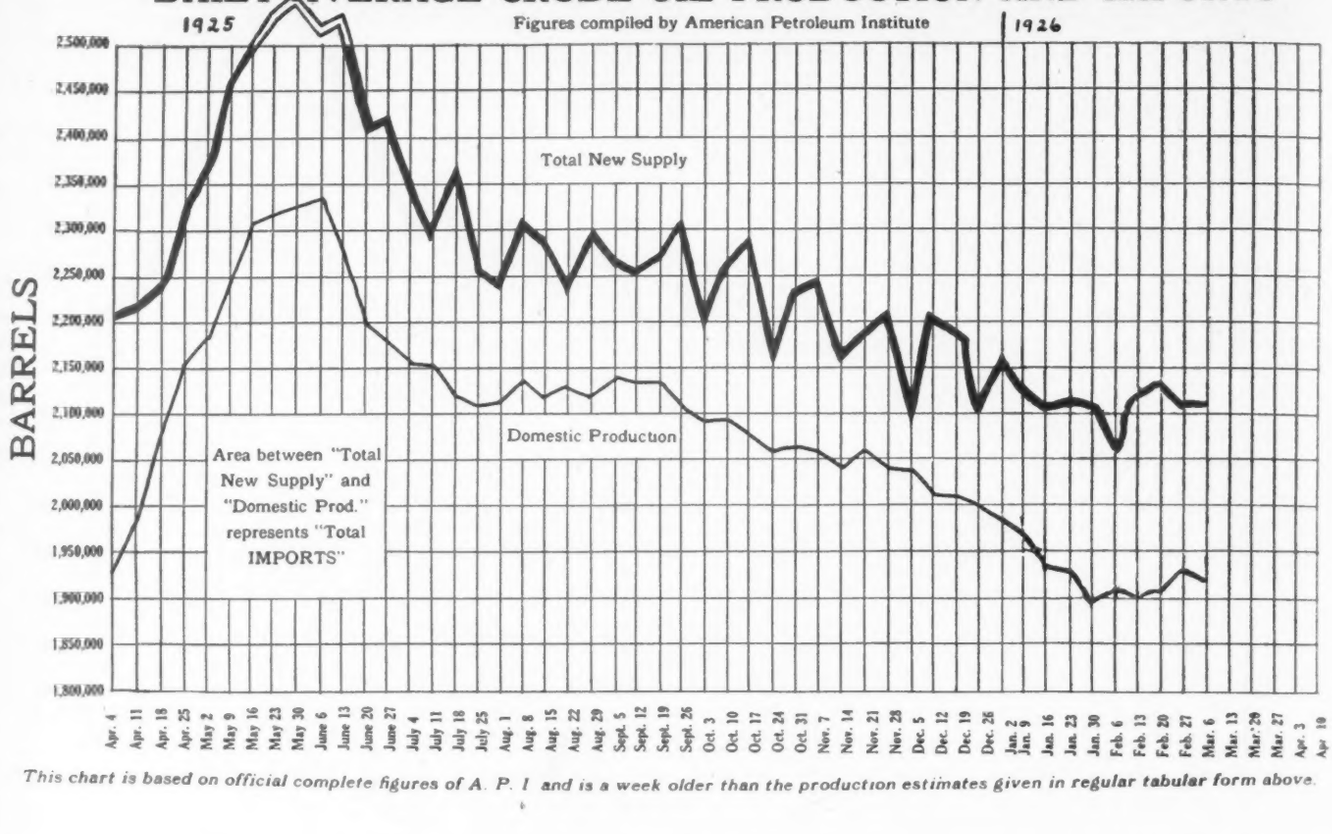
Fuel oil stocks were reduced 4,000,000 gallons to 74,369,041 gallons. Every state reported withdrawals from storage. Gas oil stocks increased 1,000,000 gallons to 51,979,211 gallons when shipments fell to a low point in Oklahoma. The steady decrease in stove distillate stocks continued total reserves on March 12 being only 2,688,292 gallons.

Summary for the Month

Production and shipments, all reporting refineries, for four weeks ended March 12. Change in stocks figured from Feb. 12.

	Gallons
Gasoline	
Production	120,961,337
Shipments	112,553,710
Net change in stocks	+8,407,627
Ratio sales to production	93.0%
Kerosene	
Production	19,382,550
Shipments	19,199,823
Net change in stocks	+182,727
Ratio sales to production	99.1%
Stove Distillate	
Production	6,125,434
Shipments	9,921,603
Net change in stocks	—3,796,169
Ratio sales to production	162.0%
Gas Oil	
Production	21,320,502
Shipments	19,471,645
Net change in stocks	+1,848,857
Ratio sales to production	91.3%
Fuel Oil	
Production	102,609,268
Shipments	124,853,556
Net change in stocks	—22,244,288
Ratio sales to production	121.7%

DAILY AVERAGE CRUDE OIL PRODUCTION AND IMPORTS



This chart is based on official complete figures of A. P. I. and is a week older than the production estimates given in regular tabular form above.

Crude Production by Districts

Daily average gross crude output of United States, by fields, for week ending with dates given below, as compiled by American Petroleum Institute

National Petroleum News

OKLAHOMA

	Mar. 13	Mar. 6
North Braman	2,550	2,150
South Braman	10,800	9,050
Blackwell	3,300	3,150
Hubbard	1,800	1,850
Thomas	7,350	7,450
Tonkawa	43,150	44,400
Garber	23,050	25,100
Burbank	44,700	44,300
Osage, outside Burbank	33,050	33,100
Watchorn	2,800	2,650
Cushing	22,500	22,550
Yale Jennings	16,100	16,250
Davenport	22,450	21,050
Bristow-Slick	31,500	31,700
North Okmulgee	18,150	18,300
Lyons-Deaner	4,300	4,300
Stroud	2,400	2,600
Cromwell	19,200	19,300
Papoose	13,300	13,800
Wewoka	16,700	16,850
Duncan district	7,550	7,650
Graham	9,350	9,400
Fox	3,750	3,800
Healdton	14,950	14,950
Hewitt	12,250	12,250
Others	65,700	65,200
Total Oklahoma	452,700	453,150
Decrease		450

OKLAHOMA-KANSAS

Report for Feb., 1926.	Daily	Average
Runs	1,035,521	36,983
Shipments	1,350,252	48,223
STOCKS	5,455,717	

TEXAS

Wichita, Wilbarger & Archer		
Runs	236,835	8,458
Shipments	240,721	8,597
Petrolia		
Runs	6,403	229
Shipments	6,080	217
Eastland & Stephens		
Runs	66,081	2,360
Shipments	102,156	3,648

KANSAS

	Mar. 13	Mar. 6
Florence-Covert	1,750	1,800
Peabody-Elbing	4,500	4,550
Eldorado-Towanda	14,150	14,200
Augusta-Fox-Bush	4,950	5,000
Rainbow Bend	4,850	4,850
Russell	5,450	5,550
Greenwood County	41,800	42,000
Others	25,900	26,000
Total Kansas	103,350	103,950

NORTH LOUISIANA

Homer	5,850	5,800
Haynesville	10,400	10,350
Caddo, light	8,850	9,000
Caddo, heavy	2,150	2,200
De Soto, Red River	4,050	4,100
Elm Grove	500	700
Bellevue	2,550	2,300
Cotton Valley	8,450	8,400
Urania	5,850	6,600
Total North Louisiana	48,650	49,450

ARKANSAS

El Dorado	7,650	7,600
Smackover, light	18,250	18,700
Smackover, heavy	133,300	133,300
Stephens	1,550	1,500
Nevada	2,150	1,200
Lisbon	1,300	1,200
Total Arkansas	164,200	163,900

NORTH TEXAS

Burkburnett	12,500	12,400
Electria	16,750	16,350
Iowa Park and K-M-A	5,550	5,550
Wilbarger	11,900	11,650
Panhandle	6,200	6,200
Petrolia	350	300
Archer County	29,200	27,800
Total North Texas	83,450	81,150
Increase		2,300

EAST CENTRAL TEXAS

	Mar. 13	Mar. 6
Mexia	13,150	13,450
Currie	1,100	1,100
Richland	2,250	2,300
Corsicana-Powell	31,900	32,800
Wortham	10,800	11,200
Total East Central Texas	59,200	60,850
Decrease		1,650

WEST CENTRAL TEXAS

Stephens County	13,600	12,750
Eastland County	5,900	5,900
Desdemona	2,100	2,100
Young County	8,400	8,400
Palo Pinto County	400	400
Callahan County	4,300	4,450
Shackelford County	2,800	2,700
Reagan County	32,200	31,600
Others	10,550	9,400
Total West Central Texas	80,250	77,700
Increase		2,550

CALIFORNIA

Santa Fe Springs	50,000	48,000
Long Beach	110,500	110,500
Huntington Beach	45,000	45,000
Torrance	28,000	28,000
Dominguez	21,500	21,500
Rosecrans	21,500	21,500
Inglewood	51,500	52,500
Midway-Sunset	92,000	92,000
Others	187,000	180,000
Total California	607,500	599,000
Increase		8,500

ROCKY MOUNTAIN

WYOMING

Salt Creek	53,500	55,050
Grass Creek	2,850	2,800
Elk Basin	700	700
Big Muddy	3,450	3,300
Lost Soldier	4,250	3,950
Rock River	3,050	3,150
Teapot Dome	1,500	1,500
Others	4,950	4,600
Total Wyoming	74,250	75,050
Decrease		800

MONTANA

Cat Creek	2,950	3,050
Sunburst	15,450	15,000
Total Montana	18,400	18,050
Increase		350

COLORADO		
Moffat (Craig)	3,850	3,800
Fort Collins	2,400	2,350
Florence	400	400
Others	550	400
Total Colorado	7,200	6,950
Increase		250
NEW MEXICO		
Artesia	3,000	3,000
Hogback	500	500
Rattlesnake	400	350
Total New Mexico	3,900	3,850
Increase		50
Total Rocky Mountain	103,750	103,900
Decrease		150
SOUTHWEST TEXAS		
Total Southwest Texas	39,650	38,400
Increase		1,250
GULF COAST		
Goose Creek	10,350	9,600
Hull	17,150	15,300
Saratoga	1,200	1,300
Blue Ridge	700	750
Damon Mound	950	1,000
Batson	1,100	1,100
West Columbia	9,400	9,400
Humble	4,800	4,850
Pierce Junction	1,250	1,100
Sour Lake	4,050	4,150
Spindletop	2,550	2,700
Orange County	16,650	11,500
Edgerly	1,150	1,150
Evangeline	1,100	1,100
Vinton	6,400	6,700
Lockport	2,450	1,700
South Liberty	7,350	7,800
Big Creek	1,100	1,400
Boling	3,250	6,550
Others	2,050	1,700
Total Gulf Coast	95,000	90,850
Increase		4,150
EASTERN		
(Including Ill., Ind., Ky., Ohio, W. Va., Pa., and N. Y.)	97,500	98,000
Decrease		500
Production Summary		
Production east of Rockies	1,327,700	1,321,300
Increase		6,400
Total Production in U. S.	1,935,200	1,920,300
Increase		14,900

Crude Changes

March 1.—Ohio Oil Co. on March 1 advanced Wooster, O. crude 10 cents per barrel, to $2.35.

March 11.—Standard Oil Co. of California advanced California refinable crude oil from 1 cent per barrel for the lowest grades, to 44 cents per barrel for the highest grade of 42 degrees gravity. Prices for heavy or fuel grades of crude oil remained unchanged.

Gulf Coastal "B" Oil Prices Advanced

HOUSTON, March 11.—Changes in "B" grade classification on Gulf Coastal crude, announced March 10 by Humble Oil & Refining Co., set up a schedule differing from that recently put in effect by The Texas Co. The Humble's "B" grade schedule ranges from $1.25 a barrel for crude testing below 25 gravity to $1.55 for oil of 30 gravity and above. The Texas Co.'s schedule conforms to the Mid-Continent grading of light oils testing 28 gravity and above.

No change has been made in the posted price of Gulf Coastal "A" grade crude at $1.50 a barrel, but a slight change was announced in specifications. "A" grade now includes all crudes conforming to the following tests: viscosity not less than 100 seconds at 100 degrees F., Saybolt; sulphur not over four-tenths of one per cent; Beaume gravity not higher than 25 degrees at 60 degrees F.; cold test of distillates having viscosity of 1000 seconds at 100 degrees F., shall not be more than 5 degrees F.

The new "B" grade schedule of the Humble, in full, is as follows:

Below 25 gravity	$1.25
25 to 25.9 gravity	$1.30
26 to 26.9 gravity	1.35
27 to 27.9 gravity	1.40
28 to 28.9 gravity	1.45
29 to 29.9 gravity	1.50
30 gravity and above	1.55

D. B. Dow Leaves Post With Mines Bureau

D. B. Dow

Staff Special

BARTLESVILLE, March 15.—D. B. Dow, petroleum engineer of the U. S. Bureau of Mines, has resigned to become chief gas engineer for the Indian Territory Illuminating Oil Co. He succeeds H. R. Pierce who resigned to become associated with J. O. Lewis at Tulsa.

Mr. Dow has been with the Bureau of Mines for six years. Recently he was the engineer in charge of the bureau's station at Laramie, Wyo. He was at the Bartlesville station for a number of years and has his home there.

TULSA.—John H. Moran, formerly with the International Supply Co., and since then a member of the firm of Moran, Dwight & Co., of Tulsa, is now with the O. C. S. Manufacturing Co., of Coffeyville, Kans., and has moved to Forth Worth, where he will have charge of the company's office.

Congress Not Excited Over Oil Bills

By Special Correspondent

WASHINGTON, March 15.—South Dakota and Nebraska ideas as to how the "oil trust" should be handled have been embodied in legislative proposals placed before the two houses of congress within the week. Senator McMaster, formely governor of South Dakota introduced a bill, S.3504 to authorize the president to go into the retailing of petroleum and its products. That bill was referred to the committee on interstate commerce.

Representative Howard of Nebraska, once private secretary to the late William Jennings Bryan, now a statesman in his own right, offered a house joint resolution forbidding the exportation of crude oil or gasoline. The measure, H. J. Res. 194 says crude "and" Gasoline but the context of the measure indicates the Nebraska economist intended to say "or" gasoline. The resolution was referred to the committee on interstate and foreign commerce.

Neither committee is likely to give the slightest attention to either measure. Since the senate upset Senator Walsh of Montana by rejecting his resolution providing for an investigation of the so-called "aluminum trust", along the lines laid down in the Teapot Dome matter, the chances of freak legislative proposals receiving attention have been reduced to almost nothing.

Amerada Buys Into Kingwood Well

TULSA, March 13.—Amerada Corp., which through wildcatting and acquisition of properties from other companies has embarked upon a campaign of increasing its crude production—a campaign, by the way, in which almost every large Mid-Continent company is engaged—evidently thinks well of the recent discovery well of the Kingwood Oil Co. and Yeager Oil Corp. in 29-8-9, near Holdenville. It has bought a half interest in the one well and the 160-acre lease on which it is located for a reported consideration of $400,000. It also purchased from the Fuhrman Petroleum Co. a 40-acre lease a quarter-mile west of the new well, paying $60,000 for it, or $1,500 per acre.

The Yeager Oil Corp., an Oklahoma concern composed principally of Tulsa and Okmulgee individuals, owned a three-eights interest in the lease bought by the Amerada. The other one-eighth making up the half-interest was sold by the Kingwood Oil Co., which owns the remaining half, the property now being owned half by Amerada and half by Kingwood. The Yeager company owns several other leases in the vicinity of the well which were not included in the sale. The well was making about 350 barrels daily at last reports.

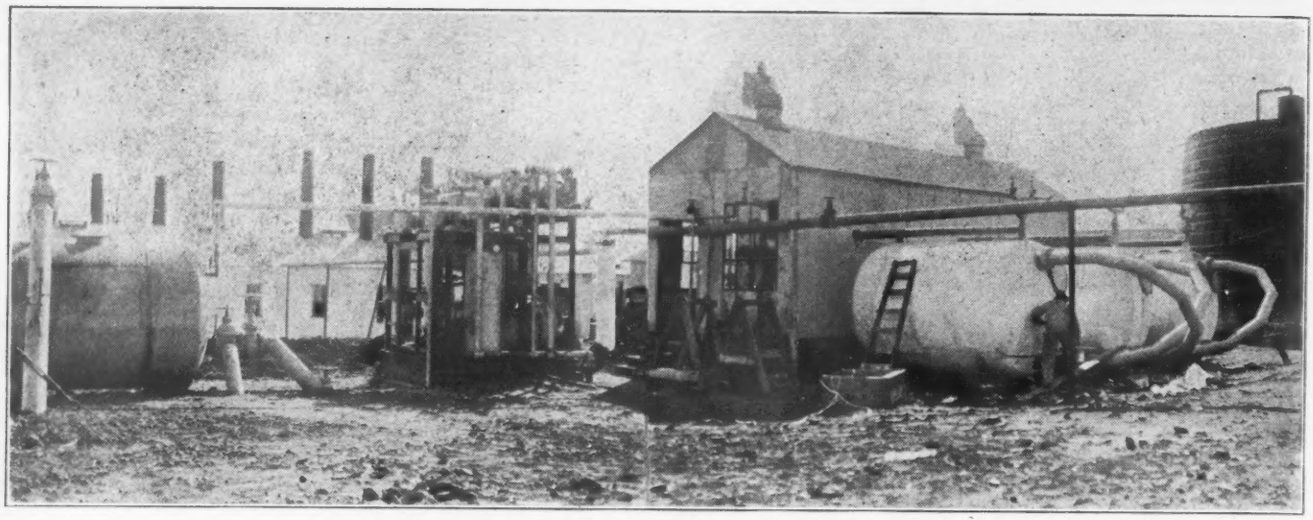


Fig. 1. View of Skelly Oil Co.'s, portable Gasoline Plant at Davenport, N. P. N. Staff Photo.

Permanent Charcoal Plant and Three Portables Built in Davenport

By J. C. Chatfield
N. P. N. Staff Writer

IN the Davenport field Skelly Oil Co.'s gasoline plant might well be termed Skelly's gasoline plants. As a matter of fact the installation consists at the present time of four separate and complete plants. All use the charcoal process. One is a permanent installation and three are portables designed by engineers of the company.

Nearly a year ago Skelly converted a small tail gas charcoal plant which had been installed at its Burbank plant into a portable. The plant was cut down and moved to a location near Stroud when the company had brought in a wildcat well which was making a million feet of gas per day.

The plant was the first use of a portable in Oklahoma and the first time the charcoal process was used on a commercial scale in treating rich gas. This plant was described first in the Aug. 12 issue of National Petroleum News a few weeks after it was set up and put in operation.

At that time the plant was making 2500 gallons of gasoline per day although it was originally designed to produce only 750 gallons per day from very lean gas. Since then production has run up above 5000 gallons per day and is now producing about that amount. The only change in the plant to date has been the installation of compressors to return the residue gas to wells in the field for drilling and pumping. Well pressure is sufficient still to handle the gas through the plant.

Success of the plant in operating on 20 to 30 minute cycles and handling large volumes of rich gas on a low well pressure was a factor in causing Emby Kaye, general superintendent of the Skelly gasoline plants, to try the charcoal process at Davenport, a few miles away.

Capacity of Plants

The first installation was a permanent type of plant with 7 by 30 foot absorbers calculated to handle up to 20 million cubic feet of gas per day. Growth of the gas supply available for processing has caused the erection of three additional plants, one of which will handle six million cubic feet per day and the other two plants seven and eight million feet. The total capacity of the four plants is thus around 30 million cubic feet per day.

A mile south of the Skelly plant The Texas Co. has a portable charcoal plant designed and built by the Gasoline Recovery Corp., owners of the charcoal process. This is being used while a permanent plant is under construction. Gas available for The Texas

Fig. 2. Designer, builder and operator of the plants. Left to right, J. L. Cline, construction superintendent; A. C. Sturgis, plant superintendent and Arthur Ayvazian, chief engineer of the Skelly Oil Co. N. P. N. Staff Photo.

Co. plant is richer than in some other parts of the field, testing at present 0.88 gallons per 1000 cubic feet. Operators of the plant report that it is making approximately one gallon per 1000, or more than the charcoal test by 0.12 gallons.

Most of the gas in the Davenport field tests under a half gallon per 1000 cubic feet. Although the crude produced in the field is 45 to 48 gravity and rich in gasoline content, the field is still on a flush basis and the gas lean. It is expected that the gas will become very rich when the field is settled.

100 Per Cent Recovery

Incoming gas at the Skelly plants tests 0.44 gallons of gasoline per 1000 with the physical testing machine using the compression method. Plant records show that the charcoal plants are recovering an average of 100 per cent of the test results. At the Stroud plant mentioned above the gas now tests one gallon per 1000 and plant yields are close to 100 per cent of the tests.

The Skelly portables were designed and built under the direction of Arthur Ayvazian, chief engineer, with the idea of real portability in mind. Fig. 1 at the top of page 34 is a view of Davenport Plant No. 2, the entire condenser and accumulator equipment of which is on the small steel frame in the center of the photograph.

At the extreme left is the scrubber tank and intake line. The three 7 by 10 foot absorbers are at the right beside the small building which houses control apparatus and the small 60 h.p. recompressor used in the process. It will be observed that concrete is used very sparingly in the plant due to the compactness of the installation, few moving parts and light weight. At the Stroud plant there is no concrete being used except for footings of the compressors used to boost gas back to the field. The recompressor at that plant was set originally on rig timbers and has never been disturbed in a run of nearly a year.

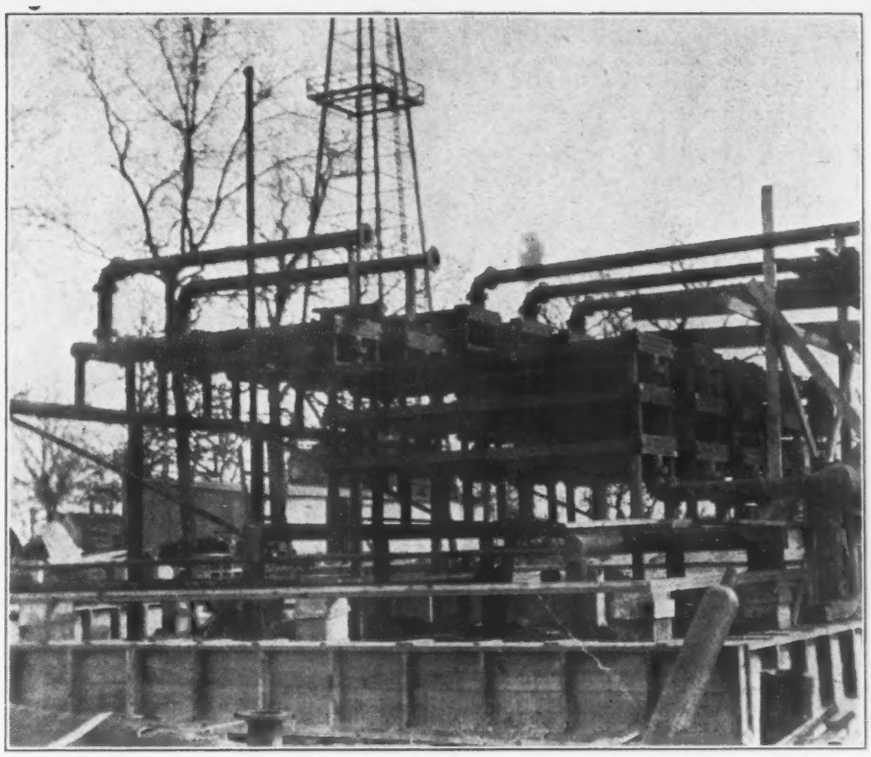


Fig. 3. Griscom-Russell bent tube sections being installed. N. P. N. Staff Photo.

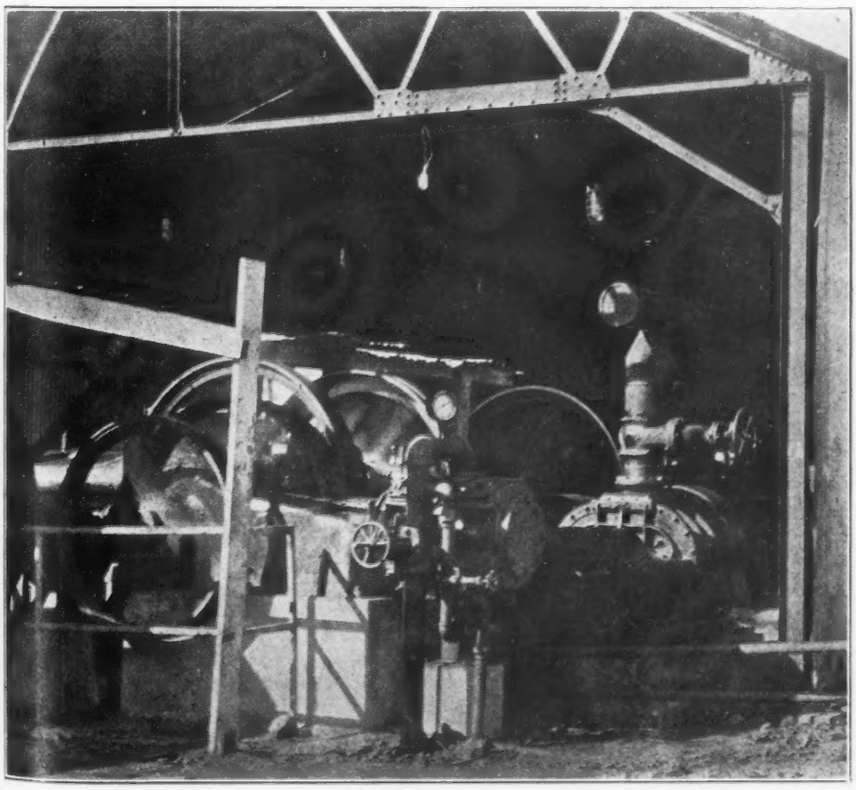


Fig. 4. Root Rotary Blowers used to boost gas through the plant. N. P. N. Staff Photo.

With one exception the condensers used in No. 2 plant are ones which were designed by men of the company for special use in the unit. Tubes in the condensers are of Monel metal. One Southwestern condenser was used because of its extremely compact design.

Small Buildings

When plants Nos. 3 and 4 were built is was decided to house the condensing and accumulating equipment along with the recompressor and controls. The buildings housing these plants are 12 by 30 feet with light steel frames and corrugated sheathing so that they may be quickly knocked down and moved.

In these two plants minor changes were made in the condensing equipment. The frames are smaller than that shown in Fig. 1. They are mounted on concrete piers about 4 feet above the surface of the earth and the accumulator tank is attached below the steel frame. When plants are to be moved the tank may be detached quickly, lines cut and the apparatus loaded on a truck for transportation to a new location. The weight of this section of the plant is about 12,000 pounds. In No. 4 plant which is just being completed, Midwest bends are used on absorbers instead of welded sections of pipe as in No. 2 plant.

In brief the charcoal process consists of passing gas through activated charcoal, steaming the charcoal to drive off gasoline and condensing out first the steam and later the gasoline. The process is operated with three absorbers, one of which is always being cooled, one being steamed and one absorbing gasoline.

Water is the main factor in the successful operation of a charcoal plant.

Pumps must be operated at a carefully regulated speed so that there will be plenty of cooling water. The drip tank is the heart of the plant, all of the steam must be condensed out of the mixture of gas and steam from the absorber and very little gasoline should be condensed out at this point, although arrangement is made to trap off the gasoline which may be condensed in the drip tank.

At the Skelly charcoal plants the water problem has been given careful study and apparatus has been arranged which prevents any drop of water from going to the storage tanks or into gasoline lines. This gives insurance against frozen and broken lines in the winter time.

The first installation of Griscom-Russell bent tube cooling sections in the Mid-Continent field was made at the permanent charcoal plant which was the first part of the Davenport plant. These sections are of slightly bent Admiralty tubes for efficient heat transfer. They are designed to be self-scaling when subjected to quick alternate heating and cooling, the further bending of the tubes by expansion and contraction knocking out any scale which may have accumulated. Fig. 3 is a view of an installation of these bent tube sections being put in for the Skelly booster station in conjunction with the gasoline plant.

Low Pressures

An important feature of the charcoal process is the fact that very low pressures are used. Even in the small oil absorption units the best results are given when gas is put through the tube under a pressure of about 15 pounds or more. At the Stroud plant mentioned above as well as at the Davenport plants the Skelly investment in compressors is limited virtually to the number of units needed to return residue gas to producing leases.

Fig. 4 shows one of the Root rotary blowers, four of which are used at Davenport to keep gas moving in from the field. Two are operated by gas engine and two by steam engine. These blowers pull a vacuum of about one inch at the intake and discharge at a pressure of about 5 pounds. No blower has been installed at Stroud as yet. The field there is quite small and well pressure fair.

As has been pointed out in this publication a number of times, natural gasoline manufacturers have been studying the problem of proper plant capacities for two or three years. Installation of large permanent plants on flush gas is being avoided. In their place manufacturers are building portables.

The decision of Skelly engineers to supplement the permanent Davenport plant with portable charcoal plants was based on the fact that these units are extremely easy to move, that they operate efficiently on very low pressures and consequently may be used over an extended period without installing the very expensive compressors necessary in either oil absorption or compression plants.

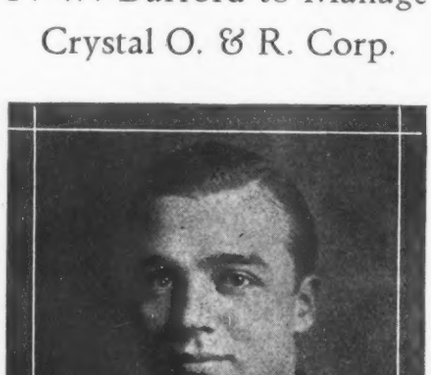
Difficulties encountered by the Skelly company in the operation of its charcoal plants center in the charcoal itself. To keep the charcoal from being carried out of the absorbers it is encased in metal screens. These are subject to corrosion from sulphur in the gas treated and operators are in search of a screen which will not be affected.

In the Davenport field there are large volumes of gas produced by the wells in conjunction with very light crude. It has been found very difficult to get scrubber capacity enough to clear the gas entirely of the entrained crude. The operators are faced with the necessity of replacing charcoal in the No. 1 plant which has accumulated heavy ends and oil. The charcoal will be shipped back to the manufacturer for treatment with superheated steam and new charcoal placed in the absorbers.

Since activated charcoal is very expensive, costing something like 75 cents per pound, operators are studying the problem of keeping it in proper condition.

A few hundred yards from the Davenport plants Skelly is building a booster station which will deliver residue gas to the Empire companies which are constructing a 16-inch line from Drumright to the field. The booster station will consist of 5 160 h.p. Cooper and 7 80 h.p. Bessemer engines. Gas will be discharged into the lines at 300 pounds pressure.

F. W. Burford to Manage Crystal O. & R. Corp.



F. W. Burford

SHREVEPORT, Mar. 15.—F. W. Burford, who has been in charge of wholesale and retail sales for the Skelly Oil Co. at Tulsa, has been elected vice president of the Crystal Oil & Refining Corp., it was announced by F. W. Garnjost. Mr. Burford will assume his new duties on April 1.

The Crystal Oil & Refining Corp. was recently organized to take over and operate the properties of the former Caddo Central Oil Refining Corp. It is owned by bondholders of the old company. The new organization proposes to improve the two refineries by adding modern equipment.

The new company is capitalized at $3,000,000 and was financed by E. W. Clark & Co. of Philadelphia. The two plants at Shreveport have a combined capacity of 10,000 barrels per day. It is connected with producing fields by 80 miles of trunk pipe lines and holds 50,000 acres of undeveloped leases in Louisiana.

Mr. Burford has been associated with the refining division of the Skelly Oil Co. the past five years. He has been active in Tulsa as a member of the Tulsa and University clubs and the Chamber of Commerce. He has been a resident of Oklahoma for the past 20 years and in contact with the oil business for 15 years. He attended law school at the University of Oklahoma.

Suman Heads Ticket For A. A. P. G. Election

HOUSTON, March 16.—A ticket committed to the establishment of permanent headquarters and the employment of a full time assistant secretary-editor for the American Association of Petroleum Geologists has been placed in the field ahead of the annual meeting to be held in Dallas, March 25-27, inclusive.

The ticket committed to this proposal is headed by John R. Suman, vice president of the Rio Bravo Oil Co., who is being backed for president; L. R. McCollum of the Union Oil Co. of California, for vice president; Fritz Aurin, Marland Oil Co. of Oklahoma, secretary; John L. Rich of Kansas, editor.

If the balloting results in the election of this ticket at Dallas it is proposed to install E. Russell Lloyd of Denver, formerly of the United States Geological Survey, as the full time assistant secretary-editor working in conjunction with the constitutional officers.

There has been no announcement of other tickets ahead of the Dallas meeting except that it is known that Dr. C. E. Decker of the University of Oklahoma, who has served for many years as secretary of the association, will be a candidate for re-election.

TULSA.—Francis John, formerly assistant purchasing agent for the Tidal Oil Co., is now with the American-La France Fire Extinguisher Co. He will continue to make his headquarters in Tulsa.

He's Man of Wide Accomplishments But Little Known by Public

By Roger B. Stafford
N. P. N. Staff Writer

NEW YORK, March 15

DIRECTORS of The Texas Co. are expected to raise to that company's presidency when they meet in Houston March 16, a man who has been little in the public eye but who has been one of the chief contributors to the company's successful growth. That man is R. C. Holmes, now a vice-president, who has been with the company since its organization in 1902.

To the oil industry generally, Mr. Holmes is best known as one of the developers of the Holmes-Manley cracking process. To the refining division of the industry, he is known as an efficient operator with far more than usual business acumen and ability to earn profits in lean years. Within the Texas Co., Mr. Holmes is beloved for the personal interest he has taken in employes, one of his hobbies being the development of young men for positions of responsibility.

Reward for Persistent Effort

The elevation of Mr. Holmes is another incident of how most large oil companies reward the men who, starting at or near the bottom, have worked persistently for their companies' success. He joined The Texas Co. when it was organized in 1902 and supervised the building of its first refinery at Port Arthur, Texas. He was appointed manager of the refinery department and has been the active head of its refining division ever since.

The Texas stockholders recognized Mr. Holmes' ability and in 1906 elected him a director. Seven years later the directors made him a vice-president and chairman of the manufacturing and marketing committee. In the latter position he has extended refining operations to the Mid-Continent, Wyoming, Mexico and points on the Atlantic and Gulf coasts. He also has been instrumental in extending the Texas Co.'s distribution to most parts of the world.

Heads Subsidiary Companies

In 1920 Mr. Holmes was elected a member of the executive committee and president of The Texas Co. of Mexico, S. A., a subsidiary operating producing and topping plant properties in Mexico. Two years later the company's marine equipment came under his direct supervision when he was chosen as president of the Texas Steamship Co. These were added activities, as he remained in charge of domestic manufacturing and marketing, as well as devoting a great amount of time and effort to research work.

R. C. Holmes, New President of The Texas Co.

Three years ago, Mr. Holmes, meeting an acquaintance on a train, said he expected to increase the company's gasoline output 40 per cent without charging another barrel of crude oil to stills. That expectation has been accomplished and a higher relative output is expected as refining and pressure still improvements are developed by reasearch workers under Mr. Holmes' guidance.

Reared on Petroleum

Mr. Holmes was reared on petroleum. His grandfather was a producer around Olean, N. Y. He was born with the odor of oil in his nostrils. When he was a pupil in the Olean High school he spent his summer vacations in the refinery of the Standard Oil Co., now the Olean plant of the Vacuum Oil Co. When he was graduated from high school in 1895 he took a job at the refinery and worked hard at it. Then he went to the Solar Refining Co. at Galatea, O., where he remained for more than a year until he joined The Texas Co., then in process of organization not long after the discovery of Spindletop.

Mr. Holmes has just turned 50, but his promotion to be operating head of a $400,000,000 corporation having worldwide connections is the culmination of 31 years of hard work. The Port Arthur refinery, which is one of the most efficient in the United

States, is regarded as his plant, a thing he envisioned and brought to fruition.

Held War Service Posts

Busy man that he has been, Mr. Holmes has always found time to cooperate with the government. When the government in 1917 asked for recommendations on motor gasoline specifications, he is said to have been the only person who submitted a definite specification. This recommendation later became known as Navy gasoline and became the gasoline pacemaker for the industry. With later modifications it is now know in the oil industry as U. S. Motor gasoline.

Mr. Holmes also was active in war work. As a "Dollar-a-Year" man he was chairman of the subcommittee on refining of the Petroleum War Service Committee. He also was a member of the Priorities Committee on Refinery Materials and Tinplate.

He and Fred T. Manley, present manager of the refining department of The Texas Co., have worked jointly on many of their research problems. They developed together the pressure still which bears their names. They both joined the company in 1902.

To live as active a life as Mr. Holmes requires a sturdy physique, and this he has. He is five feet seven or eight inches tall and squarely but not stockily built. He has a well proportioned head, with square jaw that emphasizes his persistence and determination to accomplish the task he has at hand. His brows are moderately heavy and his eyes are of penetrating blue. His forehead is high, his nose straight, and his mouth strong but friendly. His hair is brown with only slight traces of gray.

Mr. Holmes' recreations are golf and horseback riding but he does not carry the former to extreme. He also is fond of other outdoor sports. He plays some polo and in it is said to show excellent horsemanship. He is a member of the Metropolitan, Sleepy Hollow Country and Riding Clubs of New York.

Mr. Holmes lived in Texas for 15 years before he took up his headquarters in New York in 1917.

Lufkin Retires, Beaty to Become Chairman of Texas Co.

HOUSTON, March, 13.

THE anticipated ascendancy of R. C. Holmes to the presidency of The Texas Co., which was to come to pass at the annual election in Houston March 16, follows a term of continuous service since the original chartering of the corporation in 1902.

In that period of time Mr. Holmes has grown from the position of manager of the refining department to the active leadership of a major unit of the petroleum industry, succeeding Amos L. Beaty, who is to become chairman of the board of directors. Mr. Beaty, affectionately known in the industry as "Judge," because of his legal training, suceeds E. C. Lufkin, who has resigned because of ill health.

Judge Beaty was general counsel of The Texas Co., from 1913 until his election to the presidency in March, 1920. He also has been identified with the corporation from its early days, devoting his activities exclusively to it since 1907.

Born and reared near Paris, in northern Texas, Mr. Beaty was a practising lawyer at Sherman when the discovery of the Spindletop field first brought the state to the forefront for its petroleum possibilities. Shallow production had previously existed in the old Corsicana district, but it was of relative unimportance in comparison with the flush yields of the new Gulf Coastal province.

Judge Beaty's contact with the petroleum industry came about mainly with the discovery of Spindletop and the activities of John W. Gates and associates that followed. Then when The Texas Co. first entered the Oklahoma fields, his practical knowledge coupled with legal training made his services invaluable in his later capacity as general counsel.

Mr. Lufkin's Record

Mr. Lufkin, whose retirement was learned with regret by his many friends in the petroleum industry, had been chairman of the board of directors since succeeding Arnold Schlaat in 1920. Previously he had been president of the company after succeeding J. S. Cullinan in 1913.

Mr. Lufkin first became identified with The Texas Co., in 1909, when he left the Snow Steam Pump Works of Buffalo, of which he had been vice-president and general manager. He became a vice-president of The Texas Co., in 1910.

In announcing Mr. Lufkin's desire to retire from the chairmanship, The Texas Co. last week issued this statement to the press.

Having been in poor health for over a year, E. C. Lufkin has decided to retire from active business in an effort to regain his health. The annual stockholders' meeting of The Texas Co., will be held March 16, in Houston at which time the board of directors for the ensuing year will be elected. Mr. Lufkin expects to remain on the board, but, will not stand for re-election as chairman.

All Boling Dome Wells Sand Up at Same Time

HOUSTON, March 15.—All wells on the Boling dome in Wharton county stopped flowing Wednesday as a result of sanding-up and until they can be worked over not a barrel of oil is being produced from that Gulf Coastal field.

The four wells previously producing had been The Texas Co.'s No. 3 Taylor discovery, on the south flank of the dome, which came in about two months ago for maximum daily production of about 10,000 barrels; its No. 4 Taylor, a later completion for 4700 barrels initial production; Atlantic Oil Producing Co.'s No. 2 Taylor, which sprayed oil at the estimated rate of 100 barrels in connection with a gas flow; and the Sinclair Oil & Gas Co.'s No. 1 Taylor, good at its maximum for 1000 barrels daily.

Heavy gas pressure forces the fine sand and shale through the screen mesh in the wells, plugging up the oil flow, hence the belief on the part of operators that the stoppage of production is but temporary. When the wells have been cleaned out and recompleted, it is believed satisfactory production will again result.

The condition of wells sanding up is not unusual in the Gulf Coastal territory and their working over under similar conditions has been the regular thing in earlier fields. It is unusual for all wells in a field to go off production at once.

Estimated daily production of about 25,000 barrels daily to come from the Boling dome development within 60 days is, however, an indefinite forecast in the light of the sanding up of these wells. Should similar action develop from time to time in either part or all of the wells the daily average may adjust itself to conditions of this character without affecting materially the final recovery to come from the field.

Champlin Acquires Windsor

TULSA, March 15.—Properties of the Windsor Oil & Gas Co. of Okmulgee have been merged with those of the Champlin Refining Co. of Enid. The merger gives Champlin 12,000 acres of leases and an additional production of 1500 barrels per day which has been increased within the past few days by another well. Properties of the Windsor are largely in the Deaner pool.

J. B. Jamieson and Robert Jackson, heavy, stockholders in the Windsor have been made directors in the Champlin Refining Co. J. J. Deaner has disposed of his interests. Crude produced in the Okmlgee district probably will be traded for oil which is on the gathering lines of the Enid refinery.

James Lewis, general manager of the Bradford Oil Refining Co., Bradford, Pa., is ill in Johns Hopkins hospital, Baltimore. He is expected to be out of the hospital shortly.

Dehydrating Sump Oil Pays in Mexico Only Because Emulsion is Cheap

By Paul Wagner
N. P. N. Staff Writer

HOUSTON, March 15

DEHYDRATION of cut oil, or emulsion, has recently undergone experiments in Mexico because of quantities of cheap material available for treatment in some parts of the Panuco district. Treating operations are confined to emulsions standing in earthen pits on Panuco district properties, where this material has stood for years in some instances.

The problem of dehydration in Mexico is entirely different than in domestic fields of the United States. In the first place, there has been no necessity until recently of considering the salvage of oil; and in the second place, due to chemical solutions of salts in the water and the heavy gravity of the oil, the emulsions do not readily respond to treating operations as understood in fields of the United States.

Methods employed in Mexico are wasteful, by comparison with practice in the United States, in that they involve direct or indirect problems of evaporation, in connection with correspondingly high consumption of fuel oil. In all except the calcium chloride process, which is now being installed in the Topila field, light fractions of oil are lost under dehydration, as no attempt is made to condense them.

The margin between the purchase price of emulsion and the sales return on recovered oil conforms to such a wide spread that this condition alone permits profitable operations. Otherwise the relatively inefficient systems and installations, which would not even be considered in domestic fields of the United States, could not be operated. All conditions taken into account, however, the quantities and types of emulsion to be handled would not justify more expensive, or mechanically better, installations than those used.

Work Comparatively Recent

The first attempt at dehydrating emulsified Mexican crude was made by the East Coast Oil Co. of Mexico, S. A. (Southern Pacific interests), beginning about August, 1924, and continuing until February of the next year. This attempt grew out of an earlier experiment conducted by E. A. Crites, who had been sent to Mexico to put into operation a plant for the manufacture of low grade gasoline in the Panuco field.

The plant made some recovery of gasoline from emulsified crude stocks the East Coast had held in storage over a period of years. The temperature required to distill the low grade gasoline was sufficient to break down the emulsion, drive off a part as steam and permit the settling of the rest as salt water; the steam driven off with the gasoline separating readily as water after condensation.

The stock of emulsified crude, exceeding a million barrels and being added to constantly by seepages from plugged wells, presented an opportunity, or problem, beyond the scope of the process for the manufacture of gasoline. Out of this experiment and due to the large quantity of emulsified crude there grew, then, the idea of constructing a plant for dehydrating without respect to the recovery of gasoline.

Captain Reed of the East Coast organization at Panuco, assisted by Mr. Crites, proceeded with the installation of a plant designed to rectify approximately 1000 barrels daily of emulsified crude.

Tube Still Installation

After consideration of many of the known methods of dehydrating oil, the East Coast had concluded that the method best adapted to treating Mexican crude of a gravity of 9 degrees, carrying an average of 20 per cent of b. s. and w., was a tube still installation.

The conclusion was reached as a result of several considerations. Gravity and viscosity of the oil made it exceedingly difficult to use any of the chemical systems which depend on intimate admixture of the various reagents with the emulsified particles; and it also rendered difficult the use of any method of precipitation of the water by means of setting up an electrical field of sufficient potential to break down the oil film surrounding the globule o f water contained within the emulsion.

Steam systems using closed coils had been proven unadapted to such high temperatures as were found necessary by experiment to reduce the emulsion. This is because of a peculiar chemical "tightness" found in emulsions of heavy Mexican crude, which is not found in the lighter materials produced elsewhere.

Systems involving use of open steam coils had been found to be totally useless because the steam liberated directly into the oil had the effect of bringing about a greater degree of emulsification. So, by process of elimination, the East Coast reached the conclusion that the tube still was best adaptable to Panuco requirements.

Detail of Installation

An installation then was made which worked about as follows:

Open heater pits containing closed steam coils were constructed immediately adjacent to the large earthen reservoirs containing the stocks of emulsion. The emulsion was admitted from the reservoirs to the pits, where it was heated to about 160 degrees F., for the purpose of separating the large quantities of free water carried with the oil.

Gravity of the oil was such that separation was made by drawing the free water off the top of the oil. The oil from the heater pits then was pumped through a pre-heater constructed of 16-inch pipe containing super-heated steam coils, where it was heated to about 240 degrees F. Further separation of free water and a slight breaking down of the emulsion took place in the pre-heaters. The oil leaving the pre-heaters and entering the tube still contained an average of about 16 per cent b.s. and w.

In the tube still the oil and emulsion were subjected to temperatures ranging from 280 degrees F., to 340 degrees F., depending upon the pressure maintained within the still and governed by the quantity of emulsion contained in the oil.

From the first there was no question of the efficacy of the East Coast method, it became merely a question of ascertaining by trial the temperature and pressure necessary to transfer to the water suspended within the emulsion a sufficient quantity of heat to cause vaporization of the emulsified water when released to atmospheric pressure within the vaporizing tower.

Difficulties Purely Mechanical

As had been anticipated, the process proved workable, and the difficulties later encountered were of a purely mechanical nature involving the construction of a durable installation.

The still as originally built consisted of a fire brick furnace constructed to fit a demountable tube still of the East Coast's own design; employing 3-inch by 12-foot seamless boiler tubes joined on the ends by a specially cast steel return bend. A lead gasket was used between the bend and the end of the flue to give a tight seal.

Oil entered the bottom row of flues, was forced upward through the still to discharge through a 4-inch control valve into the top of a 20-foot vapor tower which stood above a heat exchanger used in the pre-heating of the oil.

First trials demonstrated that the special return bends could not be used, as expansion, contraction, sagging and warping of the flues left the gaskets loose and resulted in leaky joints. Consequently, welded return bends were

fitted to the flues and the real trial of the installation begun.

The second trouble developed from burned flues. Emulsified water when heated to high temperatures within the flues deposited its salt content as a hard precipitate, or scale, in the bottom half of the tube. This, of course, resulted in dry spots which immediately burned out.

Flues were renewed and a practice of washing the stills with fresh water every 24 hours was practiced in efforts to dissolve the salt deposits, but little improvement resulted in the lengths of the runs. In short, the constant shutdowns and renewals of flues ran the per barrel cost of dehydration to prohibitive figures.

The plant was finally closed down only after a long series of modifications and changes involving furnace baffles, shields for flues, overhead combustion methods and other similar practices.

Second System Tried

About simultaneously with the East Coast's experiment, a private Mexican corporation, known as "'La Imperial," owned by Neville G. Penrose of New York and Sam R. Katz of St. Louis, acquired from the Globe Petroleum Co., approximately 500,000 barrels of emulsified crude which had been produced by the Globe's So. 2 Quebrache well. This emulsion varied in b. s. and water content from 16 to 85 per cent.

After some months of experimenting on their own account, "La Imperial" contracted with R. M. Winsborough, who had been connected previously with the Mexican Gulf Oil Co. at Tampico, to construct and operate plants for dehydrating their Quebrache emulsion. Four plants were constructed, essentially the same in principle as that built by the East Coast.

Mechanically the Quebrache plants had some advantages. The tubes were higher from the furnace floor, larger combustion space aws allowed and less intense draft was employed. Despite these changes, similar tube troubles developed. A practice was initiated of reaming the tubes internally with pneumatic flue cleaners and the life of the tubes somewhat increased.

Owing to the high percentage of water contained in the emulsion the output of the plants was greatly reduced from the total estimated capacity. Inasmuch as the stills were constructed for certain definite heat transfer, the amount of oil recovered was dependent entirely upon the quantity of emulsified water it was necessary to evaporate.

Finally, a system of internal vertical firebrick baffles was developed, which materially lengthened the life of the tubes. Sagging was minimized by supporting the tubes with these baffles and the internal reaming of the tubes made possible their use for a much greater length of time. Higher daily average recoveries resulted from the decrease in shutdown time.

The Quebrache system continues in operation at the four plants substantially as outlined, with a fair profit to the owners. This profit, however, is only made possible because of the wide margin existing between the purchase price of the emulsified crude and the selling price of the dehydrated oil. The four plants running alternately, two in operation each day, recover about 750 barrels of marketable crude every 24 hours.

Still Another Modification

A third effort to dehydrate Mexican heavy crude emulsion with tube stills was made by the Compania International Purificadora de Petroleo, of Mexico City, on a lease in the Panuco district known as Alamo. The process used was patented by R. E. Broune and differs from the others described in that the coils of the tube still installation are connected in vertical rows and each row is operated separately, although in the same furnace.

The product of the Alamo plant had a gravity of about 7 degrees Be., and consequently met with no great sale.

As a result of the difficulties in tube still operations on emulsified oil, efforts now are being made to employ other methods. The Texas Co. of Mexico, S. A., contracted with private parties to construct a plant at Punta Arenas, which was built by the last mentioned interests. The Texas Co. agreed to supply 2000 barrels of emulsified oil daily, the product of dehydration coming back to the company and the operators of the plant being paid on a per barrel basis for the work of recovery.

The process used at Punta Arenas, which has proven successful on certain oils not containing high percentages of emulsion, involves application of both the tube still method and an indirect application of catalysis. The oil is reduced in pre-heaters much after the manner of the East Coast's operation, and then subjected to further heat under high pressure which results in precipitating nearly all the water in the emulsion.

The final stage of reduction is accomplished in an apparatus resembling a large "flash boiler" in which the hot oil containing a small percentage of b. s. and w. is sprayed onto a hot plate. The action here is two-fold, a portion of the water escapes as steam and the rest is drained off as hot water after the breaking down of the remaining oil films.

Calcium Chloride Plant

There is at present under construction a plant at Topila which has not reached the operating stage. An entirely different system is involved. The plant, which will be used to treat emulsion at the Topila works of the East Coast, is being built by Ed Fernell, who has contracted to operate it in the dehydration of 1,000,000 barrels of oil and water by the calcium chloride system.

Under this system the emulsified oil is brought to a heat sufficient to reduce the viscosity very greatly in closed steam coils. After being brought to this light and fluid condition the hot oil is subjected to intimate admixture with a solution of calcium chloride.

The affinity of calcium chloride for water is so great that the last mentioned fluid is absorbed out of the emulsion and is deposited in settling tanks as calcium chloride sludge, which later must be dessicated to render it useable again.

Argue Blame for Delay In Fall Case

WASHINGTON, March 15.—Attorneys for the United States, and for Fall and Doheny, have digressed from the main points in one phase of the criminal case against the former cabinet officer and Doheny to such an extent that they are now discussing causes of delay.

Pomerene and Roberts, the government lawyers started it in a brief filed by them resisting the application of Frank Hogan and other Fall and Doheny lawyers for a special appeal from the decision of Justice Stafford of the Supreme Court of the District of Columbia which overruled demurrers to the indictments accusing Fall and Doheny of a conspiracy to defraud the United States.

Pomerene and Roberts opposed the allowance of the special appeal on the ground that all Hogan and his associates were trying to accomplish was delay. Answering that, Hogan and associates suggested that Pomerene and Roberts were seeking to create an impression that was not borne out by the facts. Not satisfied with a general denial, Fall and Doheny counsel make a counter charge that the only delay is that which the government lawyers themselves have caused.

The government brief suggested that wealthy and influential citizens should not be permitted to delay their trials, as they said had been done in this case. They also contended that the Fall and Doheny lawyers had abandoned the point they made in the lower court to the effect that Senator Walsh of Montana, while the grand jury was hearing the testimony in the matter, broadcast a speech about the Teapot Dome and California naval reserve lease "scandal," with the obvious intent to influence the jury. The Fall and Doheny lawyers said they had not abandoned their contention on 'that point, but that it had no bearing on the immediate issue, the allowance or denial of a special appeal from the overruling of demurrers by Justice Stafford.

TULSA.—V. C. Fuller, purchasing agent for the Gypsy Oil Co., and past president of the Tulsa Purchasing Agents association, has been confined to bed for some time past with the flu, but is now recovering.

Oil Reduced With Distillate Suffers Less Dilution In Crank Case

By Robert E. Wilson
Assistant Director of Research, Standard Oil Co., (Indiana)
and
Robert E. Wilkin
Engine Laboratory, Standard Oil Co. (Indiana)

Read before Annual Meeting, S. A. E., Detroit, Jan. 26

WITHOUT question the outstanding problem in the lubrication of automobile engines is the situation produced by the fact that the heavy ends of the motor fuel tend to accumulate in the crank-case oil and greatly reduce its viscosity especially in winter operation.

At most of the recent meetings of this society, (Society of Automotive Engineers) the session on lubrication has been largely devoted to a discussion of this problem and various possible solutions thereof. While much progress has been made in determining the effect of different factors on the dilution of the crank-case oil, and some interesting appliances have been brought forward which should reduce dilution if installed on new cars, nothing has been thus far suggested which offers reasonable promise of reducing it markedly on existing cars, or of totally eliminating it even on specially equipped new cars. This further study of the problem and a specific suggestion for its solution may therefore be offered to this body without any need for apology.

It appears to be well recognized [1] [2] that the two factors of most importance in producing dilution are cold starting with a choke, which introduces considerable liquid gasoline into the cylinders and thence to the crank-case, and excessively cold cooling water, which causes the heavy ends of gasoline to condense in the cold oil film on the cylinder walls and wash down into the crank-case. Air temperature, the use of hot spot manifolds, and the "blow-by" of vapors past loose rings seem to be much less important than has frequently been assumed.

Cooling Water Temperature Factor

Acting in the opposite direction are certain factors tending to eliminate this diluent from the oil. Again the cooling water temperature is important, for whenever it heats up to a proper operating temperature—say 160° F—diluent is eliminated fairly rapidly from the film on the cylinder walls, which is constantly being replaced by fresh oil from the crank-case. The crank-case oil temperature is also important, especially if there is much "breathing" of air into and out of a crank-case, as in the case of four cylinder cars. Any "blow-by" of hot exhaust gases would undoubtedly help to eliminate dilution by this route, especially if the crank-case oil were warm.

Theoretically, the rate of elimination by all of these methods must be in approximately direct proportion to the amount of diluent present in the oil, as the greater the quantity present, the higher its vapor pressure or tendency to escape. As the net, or observed, rate of dilution is the difference between the true rate at which diluent enters the oil and the rate at which it is eliminated, it would be expected on theoretical grounds that the observed dilution would increase rapidly at first, and then more slowly as the amount of diluent and hence the rate of elimination increased.

Eventually a point of equilibrium should be approached at which the rate of eliminating diluent would just balance the rate at which it comes in. Even then the amount of dilution would, of course, have temporary increases just after starting, and decreases just after running hot for some time, but the average amount of diluent present should remain substantially constant under fairly uniform operating and weather conditions. That this is substantially true is indicated by experimental work mentioned later.

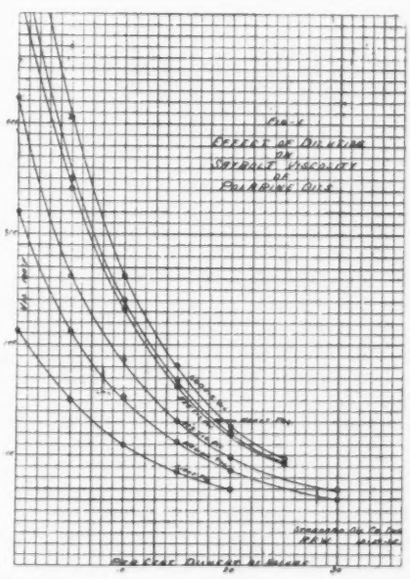


Figure 1—Effect of dilution on Saybolt viscosity of Polarine oils.

The very unsatisfactory nature of the present situation in automobile lubrication from both an engineering and a practical standpoint is best illustrated by what happens in the case of the oil in the average car in winter service in the northern half of the country, as indicated by several recent surveys discussed in detail later.

Too High for Easy Start

This average car starts with fresh medium oil whose viscosity (at 100° F.) is about 325 seconds Saybolt. Regardless of the pour test of the oil, this viscosity is undoubtedly too high for easy starting in a cold garage, or for proper circulation in the average oil pumping system until the engine has warmed up. Evidence is accumulating that the damage done to pistons and cylinder walls during this warming up period with fresh oil is both frequent and serious, [1, 2, 3, 4, 5, 6]. After running about 180 miles, however, the oil in this average car has diluted about 15 per cent (winter conditions) and its viscosity has dropped to about one-third of its original value.

The average automotive or lubrication engineer would unhesitatingly declare that this is too low a viscosity for satisfactory lubrication, but the fact must not be lost sight of that the typical car under average winter conditions does operate, with reasonably satisfactory results, providing the oil is changed about every 500 miles to prevent the accumulation of excessive amounts of road dust and grit, and in spite of the fact that its Saybolt viscosity for the last 300 miles averages around 115 seconds. Furthermore, engines have been operated satisfactorily in block tests for several hundred hours with oils of even lower viscosity, pro-

1. "Factors affecting the Rate of Crank-case Dilution," J. O. Eisinger, J. S. A. E. 15, 69 (1924).
2. "Cylinder and Engine Lubrication," A. Ludlow Clayden, J. S. A. E. **17**, 58 (1925).

1. "Scuffed Pistons Result from Cold Jacket and Lack of Oil" Frank Jardine, Automotive Industries, July 31, 1924, p. 242.
2. Causes of Poor Cylinder Lubrication in Internal Combustion Engines, W. F. Osborne, Power, Nov. 7, 1922.
3. Oil Dilution and Contamination. Automotive Research Report—Jour. Soc. Auto. Engrs. **16**, 498, May, 1925.
4. Dilution Needed for Easy Starting. Automotive Research Report Jour. Soc. Auto. Engrs. **15**, 499, Dec., 1924.
5. Engine Oil Consumption and Dilution. Neil MacCoull. Jour. Soc. Auto. Engrs. **15**, 1, p. 93, 1924.
6. Engine Corrosion—Its Causes and Avoidance—Frank Jardine. Jour. Soc. Auto. Engrs. **17**, p. 605, 1925.

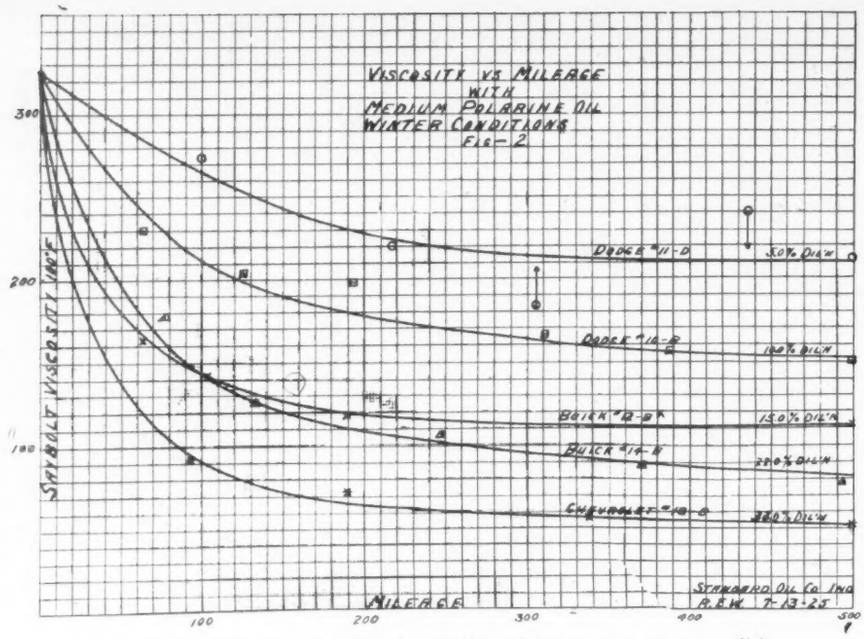


Figure 2—Viscosity vs. mileage with medium Polarine oil, winter conditions.

viding care is taken to prevent the admission of dust or grit with the intake air.

Too Low Viscosity Dangerous

On the other hand it must be admitted that viscosities around 115 seconds represent a very small factor of safety above a real danger point, and that cars which dilute somewhat more than the average, or which happen to accumulate an excessive amount of dirt before the oil is changed, are very likely to acquire scored cylinder walls or badly worn bearings, and bring discredit on both the automobile manufacturer and the oil refiner. Thus an oil of 325 initial viscosity when diluted 20 per cent, as happens in many cars, has a viscosity of only 87 seconds, about one-fourth of its initial viscosity, and is certainly in an unsafe region. Dilution-viscosity curves for the various grades of automobile oils marketed by this company are shown in Figure 1.

It is thus seen that the average present-day car is using an oil which is at best a compromise, being too viscous at the start for satisfactory winter lubrication, and too thin after about 200 miles operation. Almost every engineering staff of the larger oil and automobile companies has some members who focus their attention on dilution and demand an oil of higher initial viscosity, and other members who focus their attention on the problems of cold starting and cold lubrication who insist that the initial viscosity of the oil should be lower.

The general result has been that in the case of the higher priced cars, which generally dilute the worst, the compromise is in the direction of using an oil heavier than the average, while in the case of the cheaper cars which are more often kept in unheated garages, and are more prone to have cold weather starting difficulties, the compromise has been in the direction of recommending lighter oils.

Compromise Unsatisfactory

While these compromises are probably the best which could be made for average conditions for given models, they certainly do not represent really satisfactory solutions of the problem. Thus those who lean toward the use of a heavier oil to counteract dilution find that to get an oil with a viscosity as high as 110 when 20 per cent diluted requires an initial viscosity around 500, which is very undesirable for cold starting and lubrication, whereas on the other hand those who prefer an oil of around 220 initial viscosity which will give easy starting and good cold lubrication find that this oil on diluting only 15 per cent has a viscosity around 70.

These factors show clearly the difficulty of properly designing the lubricating systems of automobiles. The absurdity, in preparing specifications, etc., of haggling over matters of 20 or 30 seconds in initial viscosity is also apparent, when only 1 per cent dilution drops the viscosity this much, and the variation in the operating dilution between two different cars of the same make is frequently 10 or 15 per cent.

While it may shatter some illusions, which have been more or less fostered by both the oil and the automotive industries, it is nevertheless true that the specification of oil viscosities for given cars is not an exact science, but represents an unsatisfactory compromise between the demands for easy starting and good cold lubrication with fresh oil on the one hand, and fairly good viscosity after 15 or 20 per cent dilution on the other.

When lubrication troubles do occur it is hard to tell whether they are due to too heavy or too light an oil, because the same general type of injury to a given engine from a given grade of oil may result either from no lubrication for five or ten minutes after starting with the cold fresh oil, or from operating a hot engine with the same oil excessively thinned out by dilution.

Dirt Reason for Changing

It should be noted in this connection that the real reason for recommending changing of the oil after 500 miles is not that the viscosity or dilution is changing much at this time, but that dirt is accumulating to a dangerous extent if the oil is of low viscosity.

It is probably unnecessary to discuss further the present unsatisfactory and

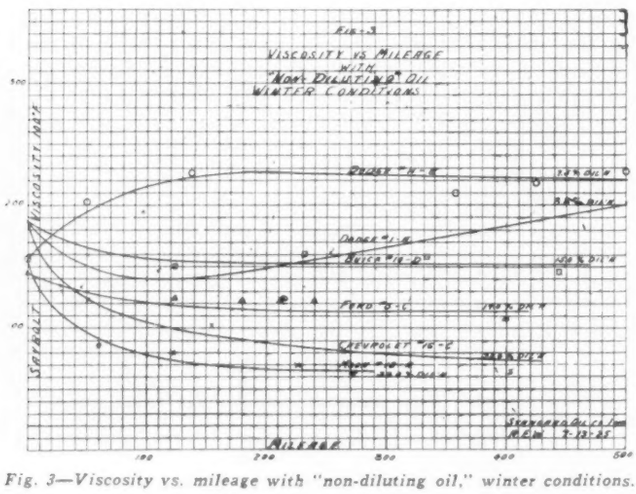


Fig. 3—Viscosity vs. mileage with "non-diluting oil," winter conditions.

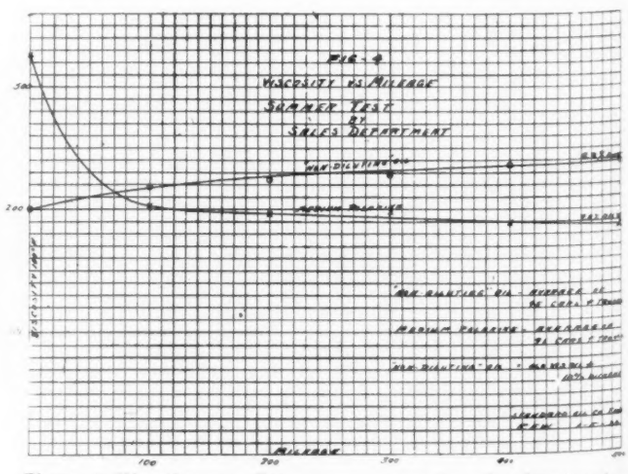


Figure 4—Viscosity vs. mileage, summer test by sales department.

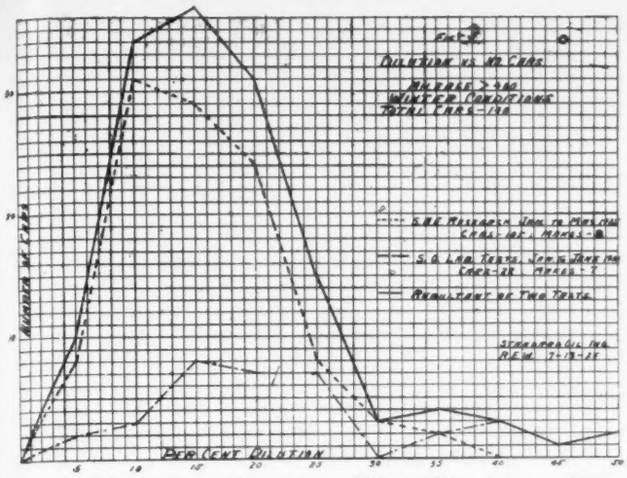


Figure 5—Dilution vs. number of cars. Mileage 400, winter conditions. Total cars, 140.

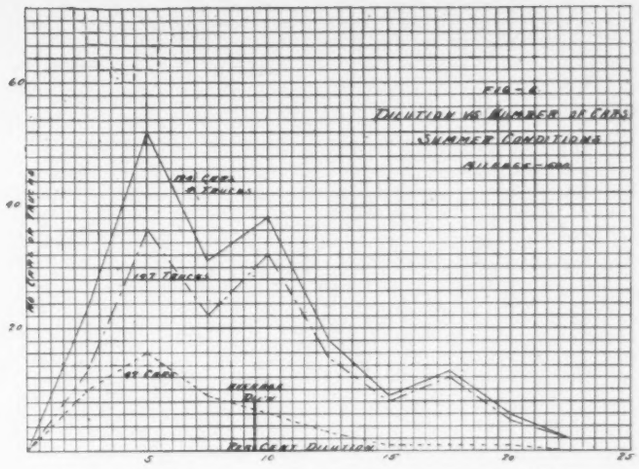


Figure 6—Dilution vs. number of cars, summer conditions.

illogical "state of the art" in the selection of automotive lubricants. It is all fundamentally due to the three or four fold change in the viscosity of lubricants under typical winter conditions.

In order to make the bearing of the subsequent sections of this report more clear to the reader, let us assume that the above mentioned equilibrium dilution figure for a given car under winter operating conditions is 15 per cent, at which point the rate of elimination of diluent from the oil just equals, on the average, the rate at which diluent comes in from the engine.

It should be possible to make an almost ideal lubricant for such an engine by blending a rather heavy oil with 15 per cent of light material identical in boiling range with that actually found in the crank-case oil at equilibrium, choosing the viscosity of the heavy oil to give the blend a satisfactory operating viscosity—say 160 seconds at 100° F.

Such a blend should maintain a substantially constant and entirely satisfactory viscosity in this particular car, giving far easier starting and better cold lubrication than an ordinary light oil when fresh, and yet as good viscosity after several hundred miles running as if the crank-case had been originally filled with an oil of 525 seconds viscosity. With such a "non-diluting"* oil available the proper design of a 100 per cent reliable lubrication system would be a comparatively simple matter.

Questions to Be Met

Whether or not such a solution of the problem would be entirely practicable for general use obviously depends upon the answer to the following questions:

1. Does dilution actually approach an equilibrium in a given car under given operating conditions?

2. If so, about how soon is such an equilibrium substantially reached?

3. What is the magnitude of this equilibrium dilution for different cars under different operating conditions?

4. What is the composition of this diluent, and how much does it vary?

5. Is it possible to get a single blended oil of this "non-diluting" type which will give satisfactory results in practically all cars?

The succeeding sections of this paper are devoted to answering these questions, in order.

In order to determine the rate of change of dilution with mileage under ordinary conditions of winter service, and ascertain the facts regarding the existence of the equilibrium dilution previously postulated, the first series of experiments were run during the winter of 1924-1925 on about 25 cars owned by various members of the research laboratory, sales school and others employed about the refinery.

They were instructed to make no changes in adjustments or in their ordinary methods of operation, except that they were not to add fresh oil before 500 miles. They furnished oil samples after about every 100 miles of operation.

Viscosity-Mileage Curves

Figure 2 shows five typical viscosity-mileage curves obtained on crank-case samples from cars filled with Medium Polarine, and Figure 3 similar results from cars filled with the "non-diluting" type of oil containing 10 or 12 per cent of diluent in a fairly heavy base oil. For reference purposes the percentage dilution corresponding to the last point on each curve is shown thereon.

These two sets of curves bring out quite clearly the fact that although individual points deviate considerably from the curve, due to fluctuation in outside temperature and in the frequency of stopping and starting, in general 90 per cent of the change in viscosity takes place in the first 150-180 miles. Beyond this mileage the viscosity curve flattens off to practically an equilibrium value.

The one exception to this was Dodge No. 1A (Figure 3) which was typical of three or four cars where the average outside temperature increased considerably before the 500-mile test was completed. As a result, the dilution

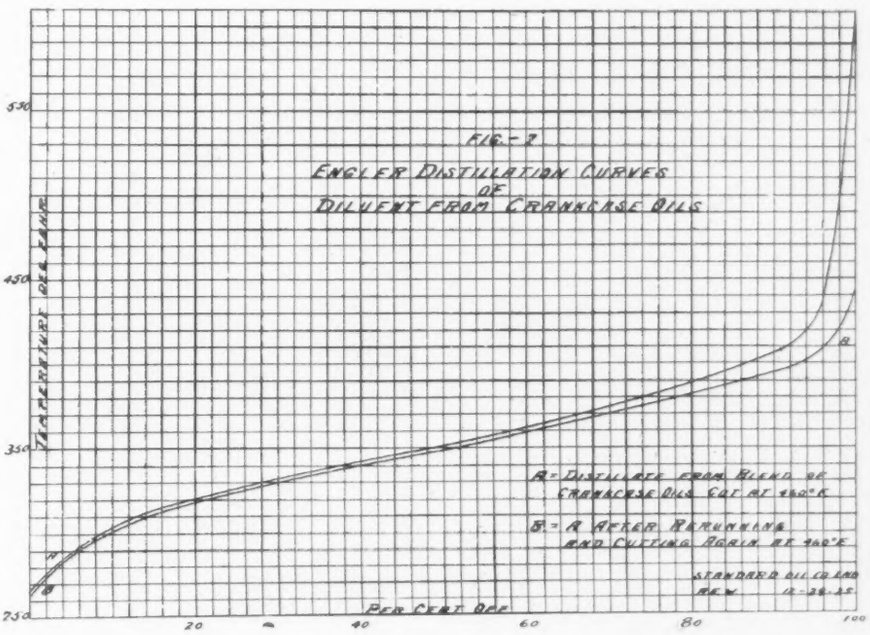


Figure 7—Engler distillation curves of diluent from crankcase oils.

*This term is used for convenience throughout the paper, the quotation marks indicating that it is not held out to be a strictly accurate description when the oil is used in cars which dilute much more than the average.

increased at first and then decreased with the coming of warmer weather. This is, of course, just another demonstration of the equilibrium principle, except that here the true "equilibrium dilution" changed during the test and diluent was for a time eliminated more rapidly than it came in.

In a number of cases two successive 500-mile runs were made on the same car in which one run was started with the "non-diluting" type of oil and the other with Medium Polarine. In all cases the equilibrium dilution observed was of the same order of magnitude, although differences in weather conditions over the two periods naturally prevented exact correspondence. Two such comparative results are shown in Figures 2 and 3 on Dodge No. 11 and on Buick No. 14.

Differences In Conditions

It should be emphasized that these results taken by themselves have no significance as to the relative diluting tendencies of the different makes of cars, as there were wide differences due to varying length of run, heated vs. unheated garages, method of using the choke, etc.

In order to study the behavior of this oil in summer the entire fleet of trucks and cars of the Standard Oil in Chicago and Detroit were operated for 500 miles on "non-diluting" oil and then on Medium Polarine. Samples were taken at the end of each 100 miles of service and the viscosity and dilution determined.

The curves in Figure 4 show the average viscosity of each oil at 100-mile intervals and the average dilution at 500 miles. This test shows that the equilibrium dilution is less in summer but, as in winter tests, the "non-diluting" oil has a higher viscosity after 100 miles of service, and the change of viscosity from start to finish is very small as compared to that for Medium Polarine. The equilibrium dilution is about the same for both oils, as demanded by the theory.

IV—The Magnitude of Equilibrium Dilution for Various Cars

While the results obtained by this laboratory last winter, typified by the curves in Figures 2 and 3, are adequate to show the existence of the equilibrium dilution and the fact that most of the change takes place in the first 150-180 miles, they are not adequate to indicate the relative number of cars which, under normal winter driving conditions, will dilute to given percentages of diluent.

To secure such results, some data obtained by the S. A. E. research committee and the data taken at this laboratory were analyzed.

Figure 3 shows the S. A. E. results from 105 cars taken at various places in the United States during the latter part of the winter, and those from 35 test runs made by this laboratory. Cars which had not been run for at least 400 miles before the end of the test were not considered, lest in some of these cars substantial equilibrium had not been reached.

In order to present the results graphically, all the cars showing equilibrium dilutions within 2½ per cent on either side of each even 5 per cent point were plotted against that point. The upper full line shows the sum of all the tests and indicates fairly clearly that the average winter equilibrium dilution is about 15 per cent, and that about 90 per cent of all cars lie between the limits of 5 and 25 per cent. It seems probable that these relatively few cars which dilute more than 25 per cent have rather serious defects in construction, adjustment or method of operation which would have to be looked after in order to get satisfactory winter lubrication with any reasonable kind of oil.

The results of the summer test made by the sales department were similarly analyzed and graphically represented in Figure 6. The cars and trucks were grouped for intervals of 2½ per cent dilution instead of 5 per cent. The full line shows the sum of both cars and trucks. The average dilution for both cars and trucks in this summer test was 9.4 per cent. It is evident, however, that many cars in summer will operate around 5 per cent dilution. Rather strangely, the trucks showed greater average dilution than the cars. This may be due to the fact that most of these cars were Fords.

Composition of the Diluent

As pointed out in the introduction to this report, if a prepared mixture of heavy oil and diluent is to maintain substantial equilibrium in service, it is vital that the boiling range of the artificial diluent be **substantially identical** with that of the equilibrium solution which naturally would be formed. If it were much heavier—as for example, if the heavy end of kerosene is used, it does not in general evaporate at a rate sufficient to balance the rate at which diluent comes in, and equilibrium is not reached until nearly as much diluent has been added as if the original oil had not been blended. This additional dilution, of course, lowers the viscosity well below a safe operating limit.*

If, on the other hand, the artificial diluent used were much lighter than the natural diluent, it would evaporate too rapidly and give an oil too heavy for the best results between the time that most of the light artificial diluent disappeared and the equilibrium amount of natural diluent was picked up.

In view of this fact it was important to determine the composition of the diluent which was naturally produced in the operation of cars, and see if it varied much with conditions. The diluent was removed from used crank-case oils by fractional distillation and the boiling range thereof determined by an Engler distillation.

Samples of diluent were recovered from a large number of used crank-case oils which contained from 9.0 to 36.0 per cent dilution. These oils were used under a variety of winter conditions and in a large number of cars.

Diluent Nearly Uniform

The composition of the diluent in each case was practically the same and the average boiling point of each almost exactly the same as that of a large, composite sample. Figure 7 shows the Engler distillation of the composite sample. A special heavy naphtha was prepared which corresponded very closely to this boiling range and was used in making up the "non-diluting" oils and the dilution-viscosity curves.

*The heavy end of kerosene may, however, be used as the diluent for a very heavy oil to be used in a kerosene burning engine, with similarly desirable results.

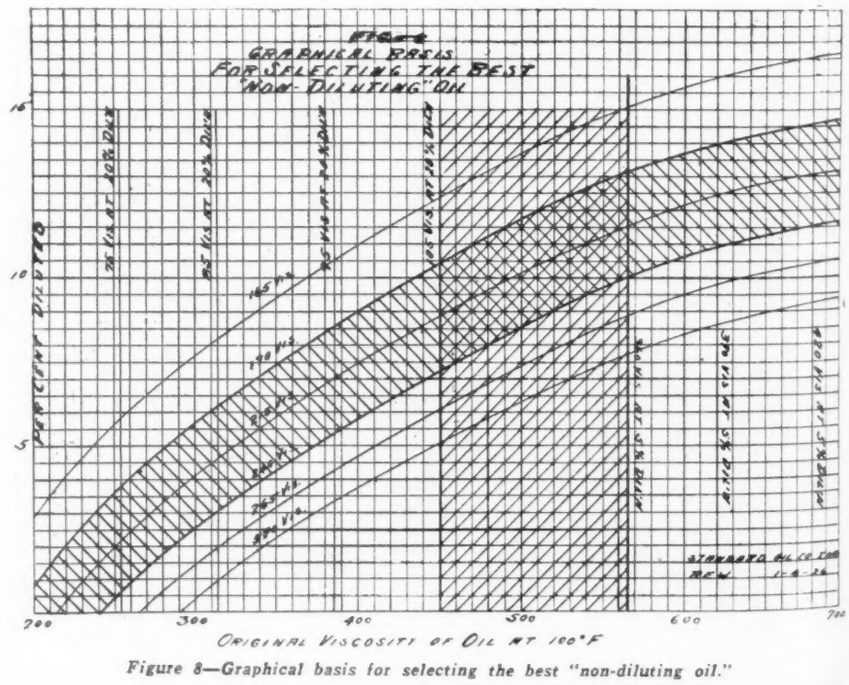


Figure 8—Graphical basis for selecting the best "non-diluting oil."

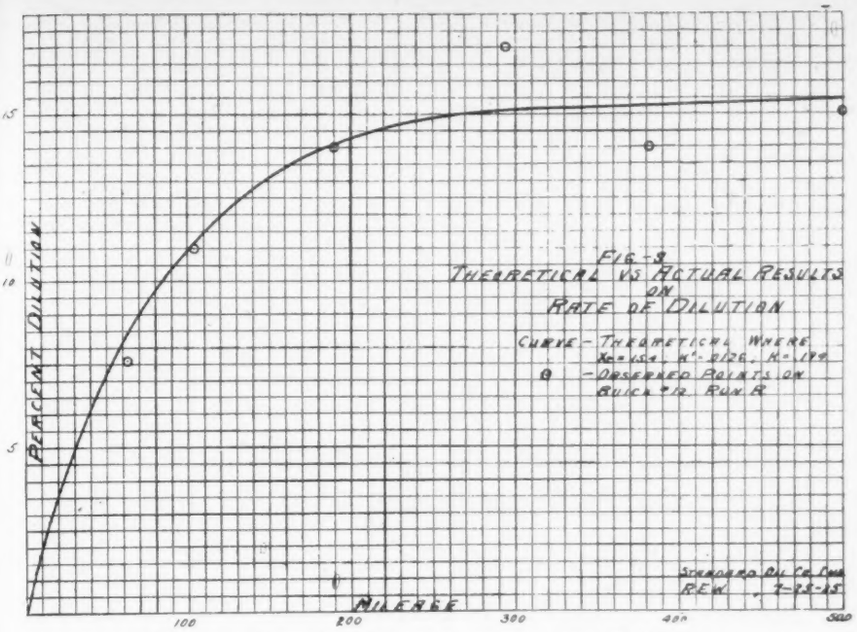


Figure 9—Theoretical vs. actual results on rate of dilution.

VI—The Selection of a Satisfactory "Non-Diluting" Oil

From the foregoing it is apparent that no single "non-diluting' oil can maintain a constant viscosity in service in more than a limited number of cars, but that the general principle can be employed to prevent excessive fluctuations of viscosity in any ordinary car, and give better lubrication at all times than that afforded by any of the ordinary type of oils.

The following discussion is designed to show how the various factors influence the selection of the best composition for a "non-diluting" oil on the basis of the varying service conditions it should meet. The method employed is indicated in Figure 8 which represents all "non-diluting" oils which might reasonably be considered, and the relatively small area which is considered best by the writers.

In this figure the abscissae represent the original viscosity of the oil before adding any diluent and the ordinates represent the percentage dilution. The curved lines represent the viscosity of the blends thus produced. For instance an oil of 215 viscosity (see third curve from the top) can evidently be made either from an oil of 215 viscosity with 0 per cent diluent, an oil of 400 original viscosity with 7.4 per cent diluent or an oil of 500 viscosity with 10 per cent diluent, with many intermediate possibilities.

Viscosity 190-240 at 100° F.

In selecting a satisfactory oil the first requirement, to insure easy starting in winter and good cold lubrication, is that the initial viscosity should not be greater than about 240 at 100° F., or not much above that of Light Polarine. The lower limit for the initial viscosity was set at 120 seconds largely in order to avoid excessive sales resistance from motorists who would not believe a lighter oil could possibly lubricate properly. The selection of these limits gives the curved cross-hatched band between 190 viscosity and 240 viscosity, within which limits any blend would satisfy the above conditions.

The other limits which determine the selection of the best oil are not based upon its condition as marketed, but after it has been in use in different kinds of service, since a single "non-diluting" oil should give satisfactory service in cars which dilute anywhere within the range of 5 to 20 per cent.

The vertical lines at the left indicate the viscosity of the original oil which must be selected in order to give the specified viscosities at 20 per cent dilution. It was considered that the oil used should have a minimum viscosity of 105 seconds when diluted to this extent, and this established the left hand limit as indicated.

The vertical lines at the right indicate the viscosities of the original oil required to give the specified viscosities at 5 per cent dilution, and here the maximum permissible viscosity has been tentatively set at 360 seconds. Even this would be too high for easy starting from a cold garage, but very few cars kept in cold garages in winter would ever drive out diluent until only 5 per cent is left. This established the fourth limit, and left the area between the two vertical lines, 105 viscosity at 20 per cent dilution and 360 viscosity at 5 per cent dilution as that which satisfied the last two conditions. The small, doubly cross-hatched area where the two bands cross represents oils which will fulfill all the prescribed conditions as discussed.

Ask For Discussion

The writers would especially welcome a discussion of these limits and of the best composition for an oil of this type. Oils from both extremes of the preferred area have been extensively used with entire success. Most of the tests reported in this paper were made with an oil near the left hand limit—460 viscosity oil with 10 per cent diluent, but it is the present opinion of the writers that the viscosity and per cent diluent should both be higher—say 525 viscosity oil with 11 per cent diluent, which would be near the center of the preferred area. Such an oil has the following rather striking properties:

Viscosity at 100° F. .....215-220 sec.
Flash .....170-180° F.
Pour Test (depending on type of oil used) .....0-20° F.
Viscosity when 15% Diluted ....162 sec.

While 11 per cent dilution generally lowers the pour test of an oil 10-12°, it is more difficult to secure a low pour test for such a mixture of a heavy oil plus diluent than for a straight light oil of similar viscosity. Experiments in this laboratory have indicated, however, that the viscosity at O°F, measured by the pressure required to force oil at a given rate through a small capillary, is actually less for an oil of this type than for an ordinary light oil (215 seconds viscosity at 100° F) with zero pour test, apparently because the temperature coefficient of viscosity for these oils is smaller than for any of the ordinary types. This is further borne out by the fact that the reduction in viscosity in going from 100 to 210° F is abnormally small for these oils.

Flash Not Too Low

The flash test is, of course, very low, judged by any ordinary motor oil specification, but it is higher than the majority of oils found in crank-cases after 200 miles of winter operation, and would not involve any source of danger in handling.

The cost of producing the oil will be slightly higher than for the present medium oils, the extra cost of the heavier oils being only partly counterbalanced by the use of the 11 per cent diluent.

Performance of the Recommended Oil in Service

The previously discussed curves in Figure 3 have shown just what took

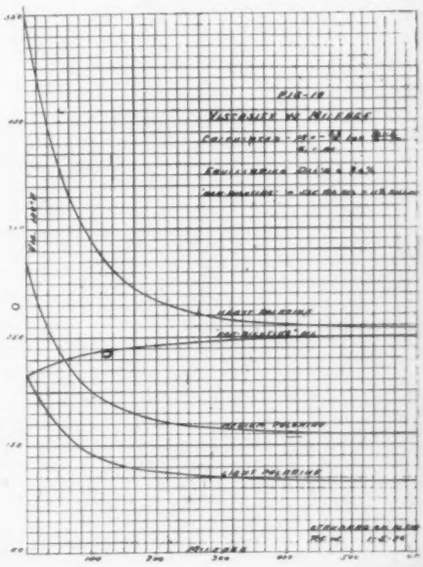


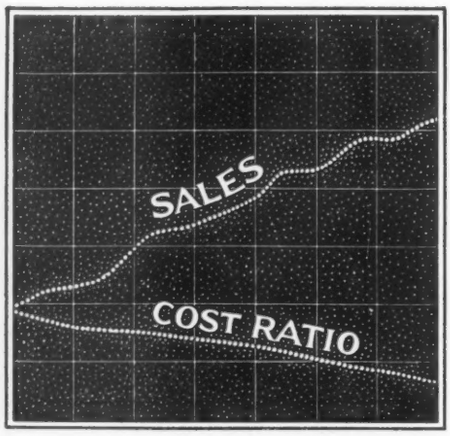
Figure 10—Viscosity vs. mileage. Calculated

$$M = -\frac{2.3}{K} \text{ Log } \frac{X_e - X}{X_e - X_p}$$

Equilibrium dilution 9.0 per cent. Non-diluting 525 vis. oil plus 11 per cent diluent.

An increase in business—

a decrease in cost



A WELL-KNOWN FIRM of jobbers in Washington, D. C., recently adopted plans for more frequent contacts with their customers throughout a large and extensive territory. They solicit their customers systematically by long distance telephone and are securing a steady increase in business, *with an appreciable cut in cost per dollar of sales.* They have discovered a close parallel between the amount of long distance calling and the volume of business secured!

EACH day brings added reports of new accomplishments by long distance telephone. Many concerns use it for special selling campaigns or for daily solicitation and sales throughout the year. Executives now take many of their long trips by telephone, conserving time and strength for other important work. Sales managers find that long distance calls will gain interviews, get orders and secure settlements where all other means fail. Long Distance is being found indispensable in the myriad duties of busy men who must get things done at less expense.

Are the key men in your organization trained to use long distance calls to save time—to increase business at no increase in cost? Long Distance is quick. It brings the whole territory within arm's reach. The power of Long Distance builds salesmen as well as sales.

The Commercial Department of the local Bell organization will gladly make a free survey of your equipment and advise you how to use the telephone in bettering your business. In the meantime Long Distance will bring the entire nation within the radius of your neighborhood. Talking thousands of miles is as feasible as speaking to the other side of your town. What far-away man or concern would you like, now? . . . . . *Number, please?*

BELL LONG DISTANCE SERVICE

place in six typical cases where a comparatively low viscosity "non-diluting" oil was used in cars at Whiting last winter.

These curves are representative of the results obtained in over 20 cars operated on this oil during most of last winter. The owners of these cars all reported easy starting and no lubricating difficulties, although a few of them diluted beyond what would be considered a desirable limit.

The question was also raised as to the suitability of these oils for summer use. As pointed out previously, the equilibrium dilution in a given car in summer is considerably less than that in winter, so that in this case it would be expected that the "non-diluting" oil would lose some diluent during the first 100 miles and give a moderately high operating viscosity as would be desired.

Here, again, the results were uniformly favorable on all types of cars and trucks, absolutely no lubrication troubles of any kind being experienced. The average viscosity at the end of 500 miles of service was much higher than when Medium Polarine was used in the same 91 cars and trucks. Careful records were kept of oil consumption and the average amount of oil used was practically identical with that for Medium Polarine.

Using Heavier Non-Diluting

A somewhat heavier "non-diluting" oil, such as that described in the last section, is again being used in the company's cars and trucks but in this case part of the comparison is being made against Heavy Polarine. The results with the "non-diluting" oil have again been entirely satisfactory, though final comparative results are not yet available.

Since the "non-diluting" oil is characterized by having a much lower initial viscosity than Medium Polarine and yet considerably higher viscosity after running about 200 miles the question naturally rises as to where the two viscosity curves will cross under service conditions. The results of comparative tests under similar conditions have indicated that this generally takes place between 60 and 100 miles if the operating conditions are similar for the two tests.

In this connection it seemed of some interest to work out the theoretical equation for the net rate of dilution of both ordinary and "non-diluting" oils, determining the necessary constants from experimental data, and see how well the resulting calculated curves check with those observed.

As indicated previously, for a given car operating under fixed conditions, the rate at which gasoline enters the crank-case should, over any considerable period, be substantially constant, although it would fluctuate from mile to mile as the engine warms up, etc. On the other hand, the rate at which diluent is eliminated from the crank-case should be proportional to the vapor pressure of the diluent in the crank-case oil, which is in turn approximately proportional to the percentage of dilution.

Net Rate of Dilution

The difference between these two rates would then be the net rate of dilution, the quantity actually observed in making tests. If, then x represents the per cent dilution and m the miles traveled, $\frac{dx}{dn}$ represents the net rate of dilution and should equal K-K'x where K is the constant for the rate of diluent addition and K' that for the rate of elimination. These terms are true constants for any given car operating under fixed conditions. The fundamental equation is therefore:

$$\frac{dx}{dm} = K - K'x \qquad (1)$$

which is most readily integrated when written

$$m = \frac{dx}{K - K'x} \qquad (1a)$$

When equilibrium is reached the net rate of dilution becomes zero owing to the fact that the rate of elimination is then exactly equal to the rate of diluent addition. This fact may be represented by

$$\frac{dx}{dm} = K - K'X_e = 0 \qquad (2)$$

$$\text{whence } K = K'X_e \text{ or } X_e = \frac{K}{K'} \qquad (2a)$$

where X_e = the concentration of diluent at equilibrium. On substitution of this value for K, equation (1a) becomes

$$m = \frac{dx}{K'X_e - K'x} = \frac{1}{K'} \frac{dx}{X_e - X} \qquad (3)$$

which integrates directly

$$m = -\frac{1}{K'} \log_e (X_e - x) + C \qquad (4)$$

$$C = \frac{1}{K'} \log_e X_e \qquad (5)$$

The constant of integration, C, may be readily evaluated as, when m=O, x also must be zero. Therefore

$$\text{and} \quad m = \frac{1}{K'} \log_e \frac{(X_e - x)}{X_e} = = \frac{2.3}{K'} \log_{10} \frac{X_e - x}{X_e} \qquad (6)$$

which gives the dilution at any desired mileage for the particular conditions represented by K and K'. K may be readily calculated from (2a) once K' and Xe are known.

In the event that the oil is diluted before being placed in the crank-case, x is no longer zero at zero mileage. The constant of integration, C, of equation (4) then becomes

$$C = -\frac{1}{K'} \log_e (X_e - X_p) \qquad (5a)$$

where X_p represents the percentage of original dilution. Substitution of this value in equation (4) gives

$$m = -\frac{1}{K'} \log_e \frac{X_e - x}{X_e - X_p} = -\frac{2.3}{K'} \log_{10} \frac{X_e - x}{X_e - X_p} \qquad (7)$$

This gives an integrated equation with two unknowns connecting dilution and mileage. By drawing a smooth curve through the observed points on the dilution-mileage curve for any car it is possible to determine the two constants and then plot the theoretical curve to compare with the actual one. By selecting the points of reference at 60 and 180 miles the solution of the equation is fairly simple and the resulting calculated curves in general correspond well with those observed.

Observation and Theory

Figure 9 shows the agreement between the observed dilution and the theoretical curve for Buick No. 12-B, which is fairly typical. Table I following shows the values calcuated for K, K' and Xe from the curves shown in Figures 2 and 3.

TABLE 1

Calculated Values for K and K'

Car	K	K'	Xe
*Dodge 11-B	.108	.0159	6.8%
Dodge 10-B	.060	.0050	12.0%
*Buick 14-D	.178	.0027	14.0%
*Ford 5-C	.168	.0115	14.6%
Buick 12-B	.194	.0126	15.4%
Buick 14-B	.143	.0066	21.3%
*Chevrolet 16-C	.263	.0102	25.9%
Chevrolet 18-B	.317	.0099	32.4%
*Moon 13-A	.314	.0086	36.6%
Average	.195	.0103	36.6%

*Cars using "non-diluting" oil

In studying this table it will be noted that, as might be expected, the rate at which diluent enters the crank-case (K) increases fairly steadily as the equilibrium dilution increases, showing a maximum variation between .060 and .317. On the other hand the rate of elimination K' does not vary as widely nor as consistently, most of the values being in the neighborhood of .01.

In drawing the following curves to represent the performance of various typical cars starting with different kinds of oil it was therefore assumed that K' was constant at the average figure of .01, while K varied as necessary to give the values of the equilibrium dilution Xe for which the various curves were drawn.

It thus becomes possible to predict with good accuracy exactly what happens when different oils are used in the same cars under the same conditions. Such curves are presented in Figures 10 and 11 to show the viscosity comparisons using either Heavy, Medium or Light Polarine as compared with the proposed "non-diluting" oil. Figure 10 represents the performance under average summer conditions with an average equilibrium dilution of 9.0 per cent. It shows that the "non-diluting" oil starts at a viscosity the same as Light Polarine crosses that of Medium oil at 60 miles and after 200 maintains practically the same viscosity as Heavy Polarine. It is the only oil which remains in a desirable operating range throughout its normal period of service. In Figure 11 similar curves leading to similar conclusions are shown for average winter conditions where the average equilibrium dilution is 15 per cent. During the first 100 miles of operation, the high initial viscosity of Heavy or Medum Polarine makes cold starting very

Ambassadors

Every product that leaves the Wheaton factory is a Wheaton Ambassador — a representative of good will and happy accord. Wherever a Wheaton product goes, its duty is to establish and hold friendship. And so, into every Wheaton faucet, valve, joint, coupling, filler, nozzle and connection are built those qualities that give the utmost in service and make profitable the friendship between user and maker.

A. W. WHEATON BRASS WORKS, NEWARK, N. J.

Wheaton

difficult and does not give adequate cold lubrication. Figure 11 shows that for the first 100 miles "non-diluting" oil gives all the advantages of Light Polarine and for the remainder of its service is practically the same as Heavy Polarine. It would, of course, be possible to prepare a special "non-diluting" oil for those few cars which dilute very badly, making it up from much heavier oils plus 20 or 25 per cent of diluent, but for various reasons this does not appear to be a very satisfactory solution of the problem. To really solve the problem of lubrication in such cars some improvement should be made either in their mechanical construction, adjustment, or method of operation to bring them into the range of dilution found in most other cars. Most of the so-called dilution eliminators are applied to cars of the type which tend to dilute several and tend to keep the dilution down to around 10 per cent and cars thus equipped are therefore ideal subjectors for lubrication with the recommended "non-diluting" oil.

In any case it is clear that for the great majority of cars the recommended "non-diluting" oil is very much better than ordinary types of automobile lubricants, and that even for the extreme conditions, where it might not give perfect results, it is in any case distinctly better than any of the present type of oils. In the light of all the foregoing facts this laboratory believes that the proposed type of oil represents the most practicable solution yet proposed for the problem of crank-case dilution and its attendant evils.

In concluding the writers desire to acknowledge the very helpful cooperation of Messrs. H. J.Saladin and V. C. Parker of this company in planning and supervising the Sales Department tests herein described, and for their advise and suggestions in determining the optimum composition for the new type of oils.

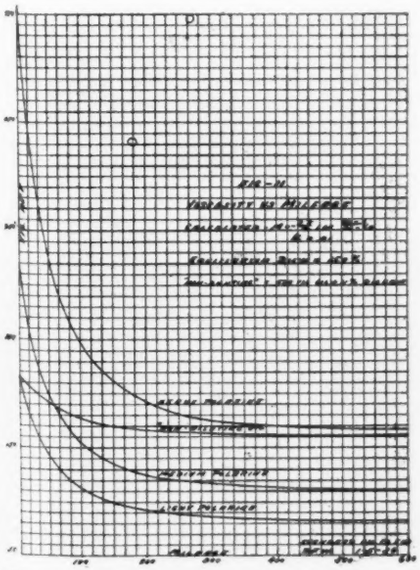
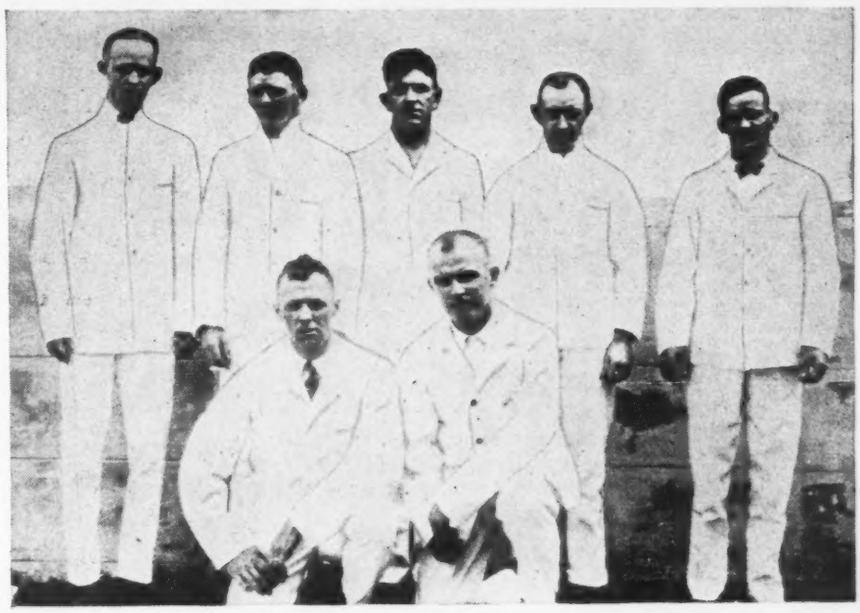


Figure 11—Viscosity vs. mileage. Calculated

$$M = -\frac{2.3}{K} \text{Log} \frac{X_e - X}{X_e - X_p}$$

Equilibrium dilution equals 15 per cent. Non-diluting oil 525 vis. oil plus 11 per cent diluent.

Two Lives Saved by First Aid Team at Refinery



Mid-Continent Petroleum Corp. First Aid Team, top row, left to right: William Middleton, R. M. Thames, Sam O'Brien, J. A. Milligan, and C. C. Woodruff. Bottom row: H. C. Spore and R. J. Kneidel.

TULSA, Mar. 15—Lives of two refinery employes of the Mid-Continent Petroleum Corp. (Cosden) were saved recently by fellow workers at the big West Tulsa plant who had been trained in first aid work. If the accidents had happened a year or so ago, before the team had been trained in artificial respiration, it is quite probable that the two men would have died.

On Jan. 20 a brick mason's helper was working on one of the stills. He was overcome by carbon monoxide gas resulting from incomplete combustion in an adjoining still. Exactly a week later the same thing happened to an electric welder.

Both men were apparently dead when they were carried out into the air by other workers. In both cases one or more members of the first aid team happened to be near at hand and artificial respiration was started. After 15 minutes work the gassed men were revived. If it had been necessary to call a doctor the men probably would have died before help could have arrived.

The Petroleum Safety Council has been working for more than a year on the organization and training of first aid teams. Training is furnished by the U. S. Bureau of Mines. At the meeting of the International Petroleum Exposition last Oct. 11 teams from various companies participated in a first aid contest. Second place in the contest was won by the Mid-Continent Petroleum Corp. team, which has saved two lives thus far. First place was won by a Phillips Petroleum Co. team.

LAWTON, OKLA., Mar. 15.—Hampton A. Steele, scout in this territory for the Prairie Oil & Gas Co., has the sympathy of his friends in the loss of his father, who died at his home in Topeka, Kans., recently. The elder Mr. Steel was 77 years of age. He came originally from Illinois, but had been a resident of Topeka for 65 years.

KNOXVILLE, TENN.—Moore Oil Co. has sub-leased its service station here to Tom J. McClane, who in turn placed Frank Blanc in charge of it. The station handles Texaco products.

Used Oil Equipment

If you want to buy it—turn to the classified advertising page at the back of this issue. If what you want is not listed there, why not insert an advertisement of your own next week?

If you want to sell it—follow the same course.

There is a constant market in used oil equipment. Take advantage of the great savings possible, either by selling what you no longer need or buying what you do need.

National Petroleum News

892 Caxton Building **Cleveland, Ohio**

Registration List, Western Petroleum

Held in Texas Hotel, Fort Worth,

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Allen, H. A., American Refining Co., Inc., Wichita Falls, Texas.
Allinson, J. J., Pierce Petroleum Corporation, St. Louis, Mo.
Ambrose, O. S., Tidal Refining Co., Tulsa, Okla.
Anderson, J. Steve, Anderson-Prichard Oil Corporation, Oklahoma City, Okla.
Anderson, O. T Olney Oil & Refining Co., Olney, Texas.
Anders, W. H., Southern Carbon Co., Monroe, La.
Andrews, T. C., American Car & Foundry Co., St. Louis, Mo.
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Atkins, W. T., Skelly Oil Co., Kansas City, Mo.
Atwood, Weston, National Petr. Marketers Ass'n, Chicago. Ill.
Ayer, L. E., Grand Trunk Railway System, Kansas City, Mo.
Brandli, H. E., and wife, Carson Petroleum Co., Chicago, Ill.
Brigham, G. M., North American Car Co., Tulsa, Okla.
Brigham, H. H., North American Car Co., Chicago, Ill.
Brin, S. E., Primrose Petroleum Co., Dallas, Texas.
Brirkman, R. R., Shreveport Producing & Refining Co., Shreveport, La.
Bromberg, Alfred L., Sonneborn Bros., Dallas, Texas.
Brown, C. M., Wabash Railway Co., Dallas, Texas.
Brown, Charles L., Warren Petroleum Co., Tulsa, Okla.
Buchanan, D. E., Chestnut & Smith Corporation, Tulsa, Okla.
Buckley, Neil, Carson Petroleum Co., Tulsa, Okla.
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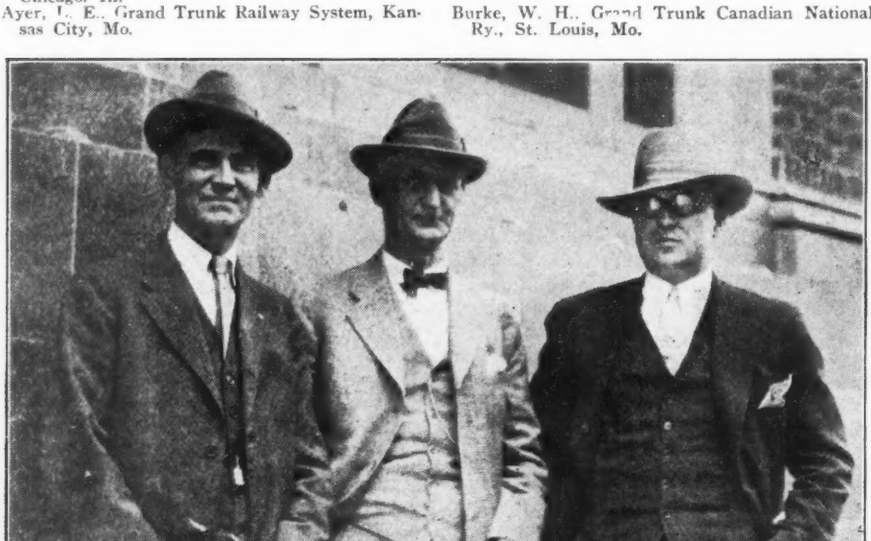
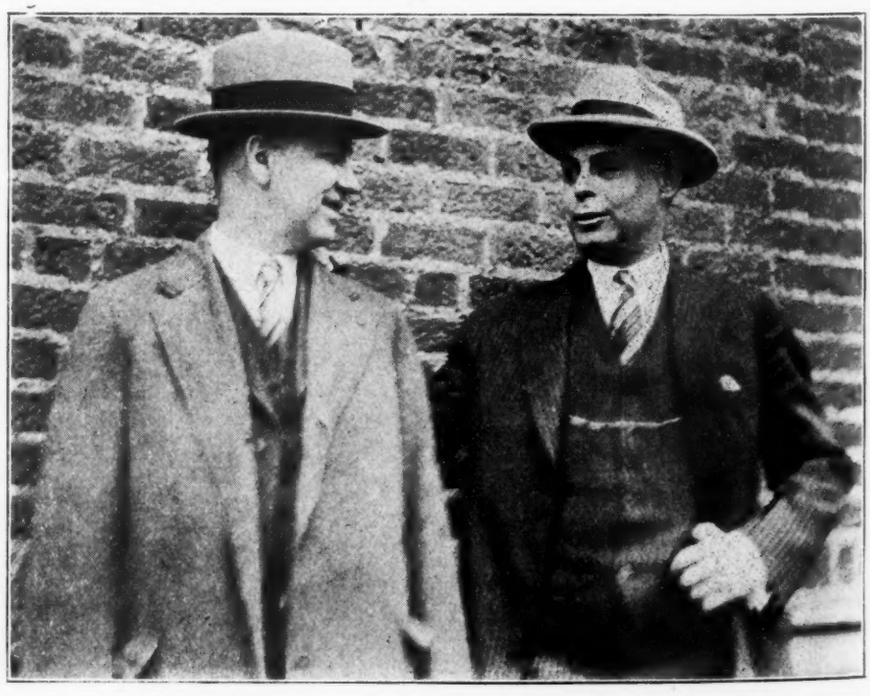
Buzzini, Walter J., J. C. Findeiss, Wichita, Kansas.
Byars, Ed P., North Texas Petroleum Traffic Bureau, Ft. Worth, Texas.
CAHOON, C. W., Cities Service Export Oil Co., New York, N. Y.
Cahoon, C. W., Jr., Carson Petroleum Co., Wichita Falls, Texas.
Calvert, C. C., Rock Island Refining Co., Duncan, Okla.
Calvert, N. C., Chicago & Eastern Ill. Ry., Dallas, Tex.
Camp, H. W., Empire Refineries, Inc., Tulsa, Okla.
Campbell, J. H., Industrial Petroleum Corporation, Tulsa, Okla.
Campbell, Walter K., and wife, Western Oil Corporation, Tulsa, Okla.
Carpenter, A. C., Lesh Oil Co., Ottawa, Kansas.
Carter, J. F., Jr., The Refiner and National Gasoline Manufacturer, Tulsa, Okla.
Casey, John E., Acme Tank Car Co., Coffeyville, Kansas.
Chatfield, J. C., National Petroleum News, Tulsa, Okla.
Claiborne, E. C., Derby Oil Co., Wichita, Kan.
Clarke, C. L., Gulf Refining Co., Ft. Worth, Texas.
Cloc, V. U., American Refining Co., Inc., Wichita Falls, Texas.
Coleman, John A., Alcorn Combustion Co., Houston, Texas.
Collett, J. D., O'Keefe & Collett, Ft. Worth, Texas.
Collins, Samuel C., Marland Refining Co., Ponca City, Okla.
Colquette, R. T., and wife, Texas Pacific Coal & Oil Co., Wynnewood, Okla.
Conner, Alvah, America Refining Co., Inc., Wichita Falls, Texas.
Constantin, E., Jr., and wife, Megargel Oil & Refining Co., Wichita Falls, Texas.
Coogan, H. B., and wife, also daughter, Miss Charlotte Coogan, Southern Railway System, Tulsa, Oklahoma.
Copeland, David, General American Tank Car Corporation, Chicago, Ill.
Corlett, W. I., Amicable Petroleum Co., Dallas, Texas.
Cover, L. E., Armstrong Cork & Insulation Co., Pittsburgh, Pa.
Cullinan, H. J., Petroleum Iron Works Co., Houston, Texas.



Above—

W. E. Twichell, chief chemist, J. W. King, refinery superintendent and R. M. Rigrings, Independent Oil & Gas Co.

BAILEY, Edward P. and daughter, Miss Margaretta Bailey, National Air-oil Burner, Philadelphia, Pa.
Bandy, R. Y., Cities Service Oil Co., Ft. Worth, Texas.
Barnard, Harry, Union Draft Gear Co., Chicago, Ill.
Beddow, John, American Refining Co., Wichita Falls, Texas.
Bennette, Howard, W.P.R.A., Tulsa, Okla.
Benoist, F. B., Walsh Fire Clay Products Co., Dallas, Tex.
Bjerregaard, A. P., Empire Refineries, Inc., Okmulgee, Okla.
Blankenship, B. E. and wife, Liquefied Petr. Gas Co., Tulsa, Okla.
Bolene, V. E. Bolene Refining Co., Enid, Okla.
Bostaph, F. D., Texas Pacific Coal & Oil Co., Ft. Worth, Texas.
Boswell, J. R., Radio Petroleum Co., Fort Worth, Texas.
Bourque, A. V., Ass'n of Natural Gasoline Mfrs., Tulsa, Okla.
Bowles, James F. B., Crown Petroleum Corporation, New York, N. Y.
Boyd, W. R., Jr., American Petroleum Institute, New York, N. Y.
Bradshaw, J. M., Union Products Co., Wichita Falls, Texas.



To the right—

W. W. Klingensmith, traffic manager Transcontinental Oil Co. and H. J. Scott, sales manager of same company.

Refiners Association's Annual Meeting

Texas, March 2, 3 and 4, 1926

DAVEY, T. M., Atlantic Oil Producing Co., Wichita Falls, Texas.
Davis, Arthur L., Empire Refineries, Inc., Okmulgee, Okla.
Davis, H. K., W.P.R.A., Tulsa, Okla.
Davis, Wm. N., Phillips Petroleum Co., Bartlesville, Okla.
Dawson, B. D., Amarillo Refining Co., Amarillo, Texas.
Dickey, J. B., Simms Oil Co., Dallas, Texas.
Dill, Bruce L., Lackawanna Railroad, Kansas City, Mo.
Dolch, A. L., C. A. & S. R. R. Co., Attica, Indiana.
Dow, Fayette B., W.P.R.A., Washington, D. C.
Dowd, C. F., Tidal Companies, Tulsa, Okla.
Downs, H. P., Downs & Boudreau, Tulsa, Okla.
Dudley, Ray, Refiner & National Gasoline Manufacturer, Houston, Texas.
Durkee, Charles C., White Eagle Oil & Refining Co., Augusta, Kansas.

EDDLEMAN, E. H., Texhoma Oil & Refining Co., Wichita Falls, Txeas.
Eisenhower, A. B., Commerce Trust Co., Kansas City, Mo.
Engelhardt, F. C., Peerless Refining Co., Wortham, Texas.
Ephgrave, Chas., Carson Petroleum Co., Chicago, Ill.
Evans, Paul W., The White Co., Ft. Worth, Texas.

FAERMANN, Leonidas, Argentine Government Oil Fields, Buenos Aires, Argentina.
Felt, H. E., American Petroleum Products Co., Tulsa, Okla.
Findeiss, J. C., Wichita, Kansas.
Foster, M. E., Phillips Petroleum Co., Bartlesville, Okla.
Fowler, R. L., Pierce Petroleum Corporation, St. Louis, Mo.
Francis, C. K., Tulsa, Okla.
Fritz, Edward P., Atlantic Oil Producing Co., Tulsa, Okla.

GARONZIK, E., Primrose Refining Co., Wichita Falls, Texas.
Garrett, A. F., Tidal Companies, Tulsa, Okla.
Garnett, R. D., New Orleans Refining Co., New Orleans, La.
Gay, T. J., Gay Oil Co., Little Rock, Arkansas.
Germany, J. A., and wife, Dallas, Texas.
Gillen, J. P., Deepwater Oil Refinery Inc., Houston, Texas.
Gissler, F. G., Conley Tank Car Co., Dallas, Texas.
Goode, M. H., Marland Refining Co., Ft. Worth, Texas.
Graffis, Herb, Petroleum Age, Chicago, Ill.
Graver, P. S., and wife, Graver Corporation, Chicago, Ill.
Gray, D. G., The Dale Oil & Refining Co., Wichita Falls, Texas.
Gray, John L., Shaffer Oil & Refining Co., Tulsa, Okla.
Greene, C. F., Greene Bros., Wichita Falls, Texas.
Green, J. E., V. & P. Ry. Co., Dallas, Texas.
Greer, Geo. J., Amicable Petroleum Co., Dallas, Texas.
Griffiths, M. E., W.P.R.A., Tulsa, Okla.
Grogan, M. J., Louisiana Oil Refining Corporation, Shreveport, La.
Gulley, M. G., Marland Oil Co., Ponca City, Okla.

HALSLY, Mark, Pierce Petroleum Corporation, Ft. Worth, Texas.
Harris, D. R., Hargreaves Printing Co., Dallas, Texas.
Harris, D. W., Empire Companies, Bartlesville, Okla.
Harrison, W. M., and wife, Star Producing & Refining Co., Ft. Worth, Texas.
Haskell, Fred, K., Empire Companies, Bartlesville, Okla.
Hedgcock, H. G., Torch Oil Co., St. Louis, Mo.
Heinbuch, Robett M., Tokheim Oil Tank & Pump Co., Fort Wayne, Indiana.
Henderson, C. L., Vickers Petroleum Co., Wichita, Kansas.
Herle, F. L., Continental Oil Co., Denver Colo.
Hildebrandt, H. C., Rex Oil Company, Ft. Worth, Texas.
Holland, Chas. J., and wife, American Refining Co., Wichita Falls, Texas.
Holmes, A. C., Empire Refineries, Inc., Tulsa, Okla.
Hudson, R. E., Greene Bros., Dallas, Texas.
Hughes, H. D., American Cast Iron Pipe Co., Dallas, Tex.
Hughes, Palmer, Simms Oil Co., Dallas, Texas.
Hunter, Wm. E., Dallas, Texas.

Above—Off from the convention to the golf course. Left, G. H. Ackerman, Jas. B. Berry's Sons Co., Right, T. J. Gay, Gay Oil Co., Little Rock, Ark.

To the left—

Haskell Downs, Marketer, Tulsa, and V. E. Jackson, general manager Iowa Park Producing & Refining Co., talking it over.

Hiler, D. H., Continental Oil Co., Sapulpa, Okla.
JACKSON, V. E., Iowa Park Producing Co., Wichita Falls, Texas.
Jacobi, W. P., Wadhams Oil Co., Tulsa, Okla.
James, J. W., Frisco R. R,. Tulsa, Okla.
Jensen, H., Spencer Petroleum Co., Chicago, Ill.
Johnson, Alex E., Pyle National Co., Fort Worth, Texas.
Johnson, Willard R., American Refg. Co., Wichita Falls, Texas.
Jones, Elliott, Elliott Jones & Co., Inc., San Antonio, Texas.
Jones, Roy B., and wife, Panhandle Refg. Co., Wichita Falls, Texas.
Joyce, J. B., Texhoma Oil & Refg. Co., Wichita Falls, Texas.

KELLEY, Geo. R., Oil & Gas Journal, Ft. Worth, Texas.
King, H. H., The Oil Weekly, Ft. Worth, Texas.
King, J. W., Independent Oil & Gas Co., Okmulgee, Okla.
Kirkland, R. H., Tulsa, Okla.
Kittredge, Edw. L., Fairmount Oil & Refining Co., Fairmont, Okla.
Klingensmith, W. W., Transcontinental Oil Co., Tulsa, Okla.
Kolkhoff, Benj., Naylor Kitzkee & Rorschah, Tulsa, Okla.

Koonsman, E. N., Kansas Boiler Works Co., Houston, Texas.

LAICHINGER, P., Armstrong Cork & Insulation Co., Dallas, Texas.
Lamason, C. M., Pure Oil Co., Beaumont, Texas.
Landman, M. K. & T. Ry., Ft. Worth, Texas.
Landsittel, A. E., Globe Oil & Refining Co., Tulsa, Okla.
Laney, J. P., Mid-Continent Oil & Gas Ass'n, Dallas, Texas.
Larson, W. S., C. I. & W. R. R. Co., Tulsa, Okla.
Lederer, E. R., Texas Pacific Coal & Oil Co., Ft. Worth, Texas.
Lester, Vanderburgh, Lester Petroleum Co., Dallas, Texas.
Levy, E. D., Pierce Petroleum Corporation, St. Louis, Mo.
Liddell, J. W., Texhoma Oil & Refining Co., Wichita Falls, Texas.
Lientz, R. H., and wife, B. P. Lientz & Co., Ft. Worth, Texas.
Lientz, Shannon D., B. P. Lientz & Co., St. Louis, Mo.
Lingenfelter, L. M., Plains Gas & Fuel Co., Wichita Falls, Texas.
Little, D. E., Litwood Oil & Supply Co., Ft. Worth, Texas.
Logan, Robert, Grand Trunk Can. Nat'l Ry., Kansas City, Mo.
Longshore, J. S., Sunflower Oil & Independent Lubricating Co., Topeka, Kansas.
Loury, Ed., Pierce Petroleum Corporation, Ft. Worth, Texas.
Ludington, C. B., Marland Refining Co., Ponca City, Okla.
Lyman, W. T., A. F. T. M. Wabash Ry., St. Louis, Mo.

MACINTYRE, James B., Standard Transit Co., Tulsa, Okla.
Majewski, B. L., Shaffer Oil & Refining Co., Chicago, Ill.
Malloy, Pat, Constant Refining Co., Tulsa, Okla.
Manley, John D., American Mineral Spirits Co., Chicago, Ill.
Marshall, E. C., White Eagle Oil & Refining Co., Kansas City, Mo.
Mary, E. J., Simms Oil Co., Dallas, Texas.
Mattson, E. N., American Cast Iron Pipe Co., Birmingham, Ala.
May, Henry B., Western Oil Sales Corp., San Antonio, Texas.
Mayhall, C. L., Imperial Refining Co., Tulsa, Okla.
McCammon, L. B., Transcontinental Oil Co., Tulsa, Okla.
McCollough, C. G., White Star Refining Co., Detroit, Mich.
McCoy, J. C., Transcontinental Oil Co., Ft. Worth, Texas.
McHamus, J. J., Illinois Central R. R., Dallas, Texas.
McIntyre, E. F., and wife, and Mrs. Vanderburgh Lester, International Petroleum Exposition, Tulsa, Okla.
McKeehan, H. L., Transcontinental Oil Co., Ft. Worth, Texas.
McKirahan, P. P., Continental Tank Car Co., Tulsa, Okla.
McLean, H. G., Empire Refineries, Inc., Tulsa, Okla.
McReynolds, H. L., White Eagle Oil & Refining Co., Kansas City, Mo.
Means, Eldon A., Vickers Petroleum Co., Potwin, Kansas.
Miskell, P. M., Empire Refineries, Inc., Tulsa, Okla.
Moody, W. E., Shaffer Oil & Refining Co., Cushing, Okla.
Moore, Dudley W., Wall St. Journal, Tulsa, Okla.
Moore, Geo. N., Lake Petroleum Company, Chicago, Ill.
Morris, Clarence, and wife, Oil & Gas Journal, Tulsa, Okla.
Mosley, G. W., White Eagle Oil & Refining Co., Ft. Worth, Texas.
Moss, T. C., General American Tank Car Corporation, Dallas, Texas.
Mulroy, H. C., Marland Refining Co., Ponca City, Okla.
Murphy, S. E., Empire Refineries, Inc., Tulsa, Okla.
Musgrave, C. R., Phillips Petroleum Co., Bartlesville, Okla.

NAYLOR, John W., Fort Worth Star Telegram-Record Telegram, Ft. Worth, Texas.
Neil, J. N., General American Tank Car Corp., Chicago, Ill.
Netherland, C. L., Illinois Central R. R., Memphis, Tenn.
Nevitt, H. G., White Eagle Oil & Refining Co., Ft. Worth, Texas.
Norman, George S., Pierce Petroleum Corp., St. Louis, Mo.

O'CONNOR, Pat E., The White Motor Company, Cleveland, Ohio.
O'Mellia, W. E., Westcott & Greis, Tulsa, Okla.
Oppenheimer, L. N., Tulsa, Okla.
Owen, John T., and wife, Barnsdall Refining Co., Inc., Tulsa, Okla.

PATTERSON, R. W., North American, Car Co., New Orleans, La.
Patton, I. H., Jr., Western Oil Corp., Interocean Oil Co., Tulsa, Okla.
Peppers, Chas. C., Champlin Refining Co., Enid, Okla.
Perdew, W. E., Derby Oil Co., Wichita, Kansas.
Peterson, M. G., Liquids Despatch Line, Chicago, Ill.
Pielsticker, F. A., and wife, Skelly Oil Co., El Dorado, Kansas.
Pigue, W. W., Gulf Publishing Co.—"The Refiner," Houston, Texas.
Platt, W. C., National Petroleum News, Cleveland, Ohio.
Pollard, A. L., and wife, Louisiana Oil Refining Corp., Shreveport, La.
Poole, F. M., Brown Instrument Co., Tulsa, Okla.
Powell, J. D., Skelley Oil Co., El Dorado, Kansas.
Pratt, C. J., Universal Oil Products Co., Tulsa, Okla.
Prichard, L. H., Anderson-Prichard Oil Corp., Oklahoma City, Okla.
Priddy, W. M., American Refining Co., Inc., Wichita Falls, Texas.

A. T. Wood, Chestnut & Smith Corp., at Fort Worth.

REED, G. W., Panhandle Refining Co., Wichita Falls, Texas.
Reid, O. H., Frisco Lines, Tulsa, Okla.
Reid, Walter, Consulting Engineer, Dallas, Tex.
Reiger, J. Roy, Simms Oil Co., Dallas, Texas.
Rice, Wayne, P., and wife, Marland Refining Co., Ponca City, Okla.
Richardson F. D., American Steel Foundries, St. Louis, Mo.
Richardson, Sid M., Ft. Worth, Texas.
Riggins, R. M., and wife, Independent Oil & Gas Co., Tulsa, Okla.
Ritter, E. H., W.P.R.A., Tulsa, Okla.
Roesner, Paul, Rex Oil Agency, Ft. Worth, Texas.
Rosier, R. R., Akin Gasoline Co., Tulsa, Okla.
Rule, Elbert S., and wife, Golden Rule Refining Co., Wichita, Kansas.
Rumley, G. G., Simms Oil Co., Dallas, Texas.
Rutledge, C. E., Jr., Pierce Petroleum Corporation, Ft. Worth, Texas.

SAMUELS, Sidney, and wife, Ft. Worth, Texas.
Sanders, C. B., Crane Co., Chicago, Ill.
Sanders, R. C., Ft. Worth, Texas.
Scherer, A. T., Sinclair Oil & Gas, and Sinclair Refining Co., Tulsa, Okla.
Schlueter, W. A., and wife, The Refining Supply Co., Tulsa, Okla.
Schmidt, Ludwig, U. S. Bureau of Mines, Bartlesville, Okla.
Schnur, W. J., Noble Oil & Gas Co., Tulsa, Okla.
Schock, E. E., Okmulgee, Okla.
Schofield, D. L., Crane Co., Chicago, Ill.
Schramm, Wm. C., Mound City Chemical Co., St. Louis, Mo.
Schnepfer, A. M., Vickers Petroleum Co., Whitewater, Kansas.
Scivally, S. R., Crown Central Petr. Corp., Tulsa, Okla.
Scott, H. J., and wife, Transcontinental Oil Co., Tulsa, Okla.
Scott, W. L., Texhoma Oil & Refining Co., Wichita Falls, Texas.
Sharpe, R. J., General American Tank Car Corp., Tulsa, Okla.
Shaw, H. G., Vickers Petr. Co., Potwin, Kansas.
Simmons, L. B., Rock Island Refining Co., Duncan, Okla.
Simon, Z. R., General American Tank Car Corp., New Orleans, La.
Sims, W. F., Panhandle Refining Co., Wichita Falls, Texas.
Skelly, W. G., Skelly Oil Co., Tulsa, Okla.
Skyem, U. S., Pennsylvania Tank Line, Tulsa, Okla.
Slagter, A. J., and wife, Transcontinental Oil Co., Tulsa, Okla.

(Continued on page 57)

Barney Mayewski, salesmanager, Chicago, and W. E. Moody, refinery superintendent, Cushing, Shaffer Oil & Refining Co.

Opportunity for Advancement Develops Truck Drivers' Efficiency

By Ward K. Halbert
N. P. N. Staff Writer

CHICAGO, March, 15.

RECRUITING the sales force from the truck driving crew is an open policy of the Sinclair Refining Co., and it has been a successful piece of executive strategy, the officials think. It has been a good thing for the delivery force in the first place and incidentally good for the sales organization. Even in Chicago where labor organizations are strong in the old industry and truck drivers are thoroughly unionized, it has been a great thing for delivery service to appeal to that hope that is present in every man's heart to "get somewhere" and make something of himself.

"If I were going in business for myself," said A. H. Sus, manager of the central division of the Sinclair Refining Co., recently, "I would rather have an efficient set of men driving my tank trucks than a high-class sales force. The delivery department is the foundation of your business. The performance of the delivery department is what brings repeat orders. And a simple solicitation by a tank truck driver of the proprietor of a new garage, promising him prompt service and good products, is worth more than the technical sales talk of a high-powered salesman."

Oil truck drivers are paid more in Chicago than is most towns. They are paid considerably more than drivers of other kinds of trucks right here in the city. That may be resented in some quarters as unfair to the oil companies but the differential is recognized by many oil men as having some merit. In one way it seems unnecessary that a tank wagon driver should be paid more than the driver of a gravel truck or a moving van but, at least, it enables oil companies to have the pick of the city's licensed truck drivers.

"The gasoline vending trade is an exceedingly sensitive one, it seems," said C. W. Hardy, head of the Sun Oil Co.'s. business in Chicago. "Our tank truck drivers have to be diplomats. Their behavior toward our customers occasionally brings comments from men whom the drivers do not even know. Not long ago we shifted drivers for some reason and sent one of our seasoned drivers out over another man's route. The next day we had a complaint from the purchasing agent of one big company we serve. He criticised the new man on the route but was not ugly about it; he complimented two others at the same time. The strange thing about it is that he had never seen either of them. He had just been told by the persons our men come in contact with."

Truck Drivers Potential Salesmen

HOW one oil company stimulates interest of its tank truck drivers in their work and keeps a high rating of efficiency in this branch of its service by recruiting salesmen and men for higher positions from among the truck drivers is told in the accompanying article. While its men are not encouraged to put in part of their time while out with the truck trying to build up new sales, their ability and general deportment is gauged and they are made to feel that they are important representatives of the company because of their contact with the public, even while they are on the road driving their truck.

Solicitation of new business is not just exactly what Chicago oil men mean when they say their truck drivers must be salesmen. It is the diplomatic side of salesmanship that they have reference to. Especially is this true in the domestic fuel oil service. C. E. Dowd of the Lynch-Clarisey Oil Co., said not long ago that, whenever he employed a driver, he held in mind the fact that his men had to enter good homes in Chicago every day, meet fastidious women in charge of those homes and explain things about which these women know little or nothing.

A Driver as Salesman

Nevertheless tank truck drivers do selling. In small towns, where tank trucks cover country routes, the oil jobber's contact with his trade is chiefly through his truck drivers. They are his principal sales representatives. But in cities oil men do not use their drivers in this way. The business actually brought in to any oil company by truck drivers is inconsiderable, but it is encouraged and, when it happens, it is observed by men higher up. It does not always mean money in the driver's pocket. Seldom does he get a commission on the sale, or even a prize for the accomplishment. In some cases it may help his bonus a little, if it so happens that the company gives bonuses to drivers. But as a rule it is only favorable mention. When a driver gets a customer it is only a "feather in his cap" but in the words of Mr. Sus, "Some Sinclair men have collected themselves quite a war bonnet."

The reason sales prizes and bonuses are not given to men in the delivery department is obvious. If commissions or awards on new business were given truck drivers it would work against efficiency. The primary duty of a truck driver is to deliver goods. In some organizations (notably Sinclair) these men are looked upon as members of the sales department, or at least candidates for places on the sales force. They are to keep their eyes open for good prospects along their routes because they are interested in holding up gallonage, each on his respective route. But selling is a secondary duty. The company management can not afford to encourage any class of men to neglect their main job for a side issue.

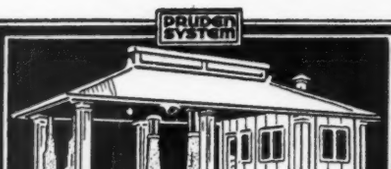
Men and Trucks Costly

Whereas a truck driver is valued above the ordinary when he brings in a new customer, large or small, part of that credit is due to his being alert in seeing a new prospect, and part to his being ambitious and interested in building up his route. The fact remains that a truck driver is not being paid for selling. He may be ever so good a prospect, but not a finished salesman. His development is encouraged but not to the extent of wasting his own time or that of his truck. It must be remembered that a union truck driver's pay in Chicago plus depreciation on a good truck amounts to a junior salesman's compensation or possibly more.

A union oil truck driver in Chicago draws $175 a month for nine hours work six days a week. The scale calls for time-and-a-half overtime and double time on Sundays and holidays. If a tank wagon driver in this town makes under $200 a month he owes his wife an explanation, and plenty of them draw more than that, especially in the rush seasons. This is roughly $50 a month more than the average tank truck driver gets elsewhere.

Depreciation is an intangible thing, but in this case suppose it is figured coincident with the driver's working time. A good average tank truck for Chicago service represents an investment of $5,000 and must be charged off in four years. That means an annual depreciation of $1,250 and a year has 2,808 hours if you count nine hours a day and six days a week. This means a depreciation on the average truck of 44½ cents an hour or more than $4 a day.

Roughly a driver's wage is $7 a day, not figuring overtime. That with the depreciation on a truck is $11 a day or



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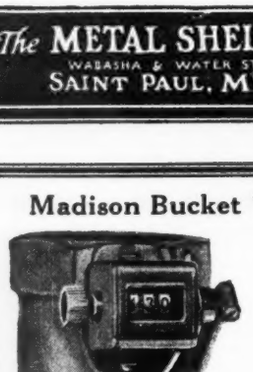

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about $1.20 an hour. By the way, that is 2 cents a minute loss to the oil company for every minute the driver spends in an unprofitable performance. The drivers recognize this, of course, and none with a sense of proportion is going to "chase rainbows" with the time he is expected to spend delivering oil.

Chicago's Distance Problem

There are bigger towns in the world than Chicago, and these like some of the smaller ones present individual service problems, but Chicago is all spread out. That is its chief distinguishing characteristic. There is no place in the city where all of anything may be found. It makes no difference to what class of trade an oil man may cater, his trucks have miles to go. Transportation is Chicago's big internal problem, and it hits the oil industry probably a little harder than most industries.

To reduce delivery cost per gallon, all the oil companies have tried to reduce truck miles per gallon. Fuel oil companies concentrate on the business close to their bulk plants, rejecting business if it is too far away. Small companies in the general oil business have a perpetual battle against the high cost of special deliveries to customers and try hard to hold their trucks to definite routes. Big companies build enough bulk plants to enable their trucks to cover the town economically. Sinclair Refining Co. has nine bulk plants in metropolitan Chicago.

One small operator, using only about a dozen trucks in the city and working all of them out of a single base, has kept an accurate account of truck delivery expenses and has found that the average delivery cost on his merchandise (not discriminating as to kind) was approximately 9-10 of a cent a gallon in December, 1925. However this man was obliged to do quite a little special delivery service on lubricating oil, making long runs with small orders, so his lubricating oil delivery cost, taken alone, was upwards of 4 cents a gallon.

High Delivery Costs

The fact that the high scale of wages is enforced upon Chicago oil men and the additional fact that distances are great and delivery costs naturally high, few oil men are anxious to add to that cost. They appreciate their good truck drivers, as any employer would if he were getting the best the city affords, but they are certainly not anxious to have the scale advanced nor do they feel able to pay bonuses and give prizes to drivers.

Union rules, as well as union scale of pay, add to delivery costs in Chicago. No union truck driver is permitted to wash a truck. That must be done by somebody else. They are permitted to grease and oil their machines but some companies do not require that because that work can be done in the garage at night. They want their high priced union help to use their valuable time at nothing that can be done just as well by cheaper laborers.

The system of Sinclair Refining Co. has been followed out by a number of the smaller organizations and they have found it to work just as well for them as for a big company. They give their employees to understand thoroughly that good men within the organization will be given preference when there is a job open higher up. If a tank wagon driver can hold it, there is no reason why he may not have it, and if he wants the job and can hold it he handles it better on account of his experience driving a tank truck.

All the Junior employees of Sinclair Refining Co. know that promotions come often in that organization. They are impressed purposely with the fact that men are not often brought in from the outside and given good jobs; in fact never, if there is a man in the organization who can take the good job in question. A young man who takes work with Sinclair washing tank wagons at night learns that he may soon have a job on the loading rack if he does a good job washing trucks. And on the loading platform he becomes aware that he may drive a truck himself as soon as his turn comes if he gets a driver's license.

Examples Always Present

In the Sinclair organization, if a truck driver is removed from a big truck and put on a small one he does not feel "demoted." His boss, the man immediately above him, tells him better than that. On the big truck he only had to drive about and make dumps in a small radius from the plant, always at company filling stations. But on the smaller truck he will have a long route and meet customers and make sales occasionally. The smaller truck is a position of greater trust. If, after that, he is taken off of a good route and given a poor one he knows that he is expected to build it up and that the management has confidence in his sales ability.

Even then it is not so much a matter of solicitation as a matter of service. He solicits some; he gets new customers wherever he can, but whether he gets the customers himself or simply turns in names and addresses of prospects, he is building up his route and that is the object in view. If he sticks to his work and builds up his job he has a future, proportionately as big a future as the company itself.

There are plenty of examples in the Chicago district to show how accurately the principle functions. For instance, there is Jack Kavanaugh who has general charge of deliveries in the metropolitan district. He came up from the ranks. He used to be a tank truck driver. He can drive any truck in any of Sinclair's nine fleets. He has a commanding physique, a knowledge of the oil business that demands respect, and he knows the truck driver's problems and speaks the truck driver's language.

Mr. Kavanaugh states that the men in his organizations respond readily to the appeal to their opportunities. He

estimates that the average Sinclair truck driver in Chicago has been with the firm four years. William Anderson, the oldest truck driver has been on the job nine years and there are plenty who have been with the company as much as six years.

When a truck driver gets well enough acquainted and gets himself sufficiently well liked on his route that he actually is holding business for the company, he is an asset to the management. For reasons above mentioned, he can not be paid any more than any other union truck driver on the force. "In smaller towns," Mr. Sus suggests, "a truck driver might wield such an influence with the trade that he could change connections and carry quite a good deal of business with him from one company to another. But that is not so likely in Chicago."

Competitive oil companies seldom have their bulk plants located in such a way as to enable a man to move from one company to another and expect to cover the same route." A good driver who realizes he is valuable to his firm knows too that he is worth more with his present connection than with some other, worth more even to himself. Just in this connection the union takes a hand again. It is a rule of the oil union that a truck driver loses his standing with the labor organization if he changes jobs too often and a driver is absolutely prohibited from covering his old route with a new company, any time within a year after he changes jobs.

Additional Registrations W. P. R. A. Convention

(Continued from page 52)

Slimp, C. A., Pioneer Oil & Refining Co., San Antonio, Texas.
Slocum, G. A. R., Skelly Oil Co., El Dorado, Kansas.
Smellage, R. H., Smellage & Morris, Waxahachie, Texas.
Smith, Fred C., Houston, Texas.
Smith, Harry H., Mid-Continent Oil & Gas Ass'n, Tulsa, Okla.
Smith, G. M., Rock Island Refining Co., Duncan, Okla.
Smith, K. J., Skelly Oil Co., El Dorado, Kansas.
Smith, O. C., Graver Corp., Hammond, Ind.
Smith, Rembert, W.P.R.A., Tulsa, Okla.
Smith, Victor H., Lion Oil Refining Co., El Dorado, Ark.
Sprague, Ben, Cities Service Oil Co., Dallas, Texas.
Snyder, J. L., Quaker City Tank Line, Inc., St. Louis, Mo.
Stark, Harry S., Chesapeake & Ohio Ry., St. Louis, Mo.
Stevens, W. R., Dallas, Texas.
Sybrandt, John L., The Ludlow Valve Mfg. Co., Kansas City, Mo.

TANSEL, R. B., Petroleum Oils Corporation, Tulsa, Okla.
Taylor, A. C., Texas Pacific Coal & Oil Co., Ft. Worth, Texas.
Thomas, J. Elmer, Ft. Worth, Texas.
Thompson, F. S., Standard Tank Car Co., Tulsa, Okla.
Tracey, W. A., Sinclair Refiining Co., Dallas, Texas.
Triplett, Grady, Gulf Publishing Co., Tulsa, Okla.
Turner, I. M., Quaker City Tank Line, Inc., St. Louis, Mo.
Tuttle, O. J., Empire Refineries, Inc., Tulsa, Okla.
Twitchell, W. E., Independent Oil & Gas Co., Okmulgee, Okla.

VERSCHOYLE, C. H., and wife, Rock Island Refining Co., Duncan, Okla.
Vickers, S. J. Dallas, Texas.
Vinson, Curtis, Dallas Morning News, Dallas, Texas.

WADLEY, D. F., Pierce Petroleum Corporation, Dallas, Texas.
Wadsworth, J. M., Pierce Petroleum Corporation, Sand Springs, Okla.
Wall, H. M., Texas Chemical Co., Houston, Texas.
Walsh, Joe L., Continental Oil Co., Kansas City, Mo.
Ward, O. B., Battenfeld Grease & Oil Co., Kansas City, Mo.
Warrick, Chas. J., North Platte, Omaha, Neb.
Watson, Robert A., I. & G. N., Ft. Worth, Texas.
Watts, H. G., Derby Oil Co., Wichita, Kansas.
Williams, Dow, Skelly Oil Co., El Dorado, Kansas.
Willson, C. O., Oil & Gas Journal, Tulsa, Okla.
Wilmeth, Leo J., Union Oil Products Co., Wichita Falls, Texas.
Wolverton, Chas. T., Jr., Olney Oil & Refining Co., Olney, Texas.
Wood, A. F., Chestnut & Smith Corp., Tulsa, Okla.
Woodruff, G. G., Roxana Petroleum Corporation, St. Louis, Mo.

YEAGER, Hal W., American Refining Co., Inc., Wichita Falls, Texas.
Yeager, J. B., American Refining Co., Wichita Falls, Texas.

ZANE, Harry S., C. M. & St. P. Ry., Tulsa, Okla.
Zahnd, G. E., Carter Oil Co., Tulsa, Okla.

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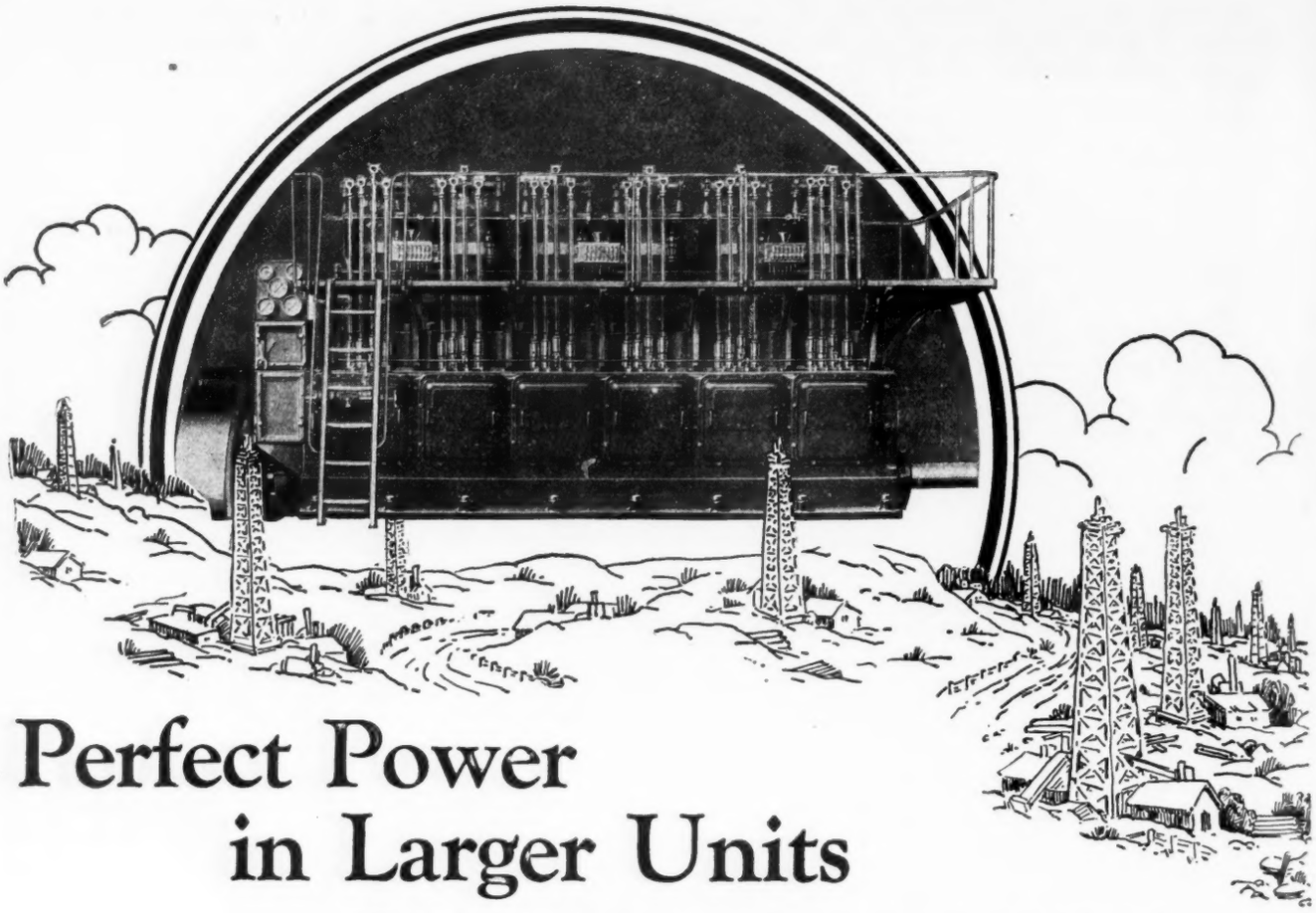

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BESSEMER OIL FIELD ENGINES – COMPRESSORS VACUUM PUMPS – ROLLER PUMPING POWERS

New Kay County Wildcat Makes 900 Bbls. Thought To Be in Wilcox Sand

By A. F. Hinton
N. P. N. Staff Writer

TULSA, March 13

IN these days of expectancy as to where Oklahoma's future supply of crude is to come from, with old fields declining in production and all companies fortunate enough to have crude stocks on hand drawing upon them heavily to meet daily requirements, the wildcat well gets the major share of attention in the news, as it is from one of these venturesome wells that the next big field must come, if, as, and when it does finally appear.

The most important wildcat showing of the past week was that of the Marland Oil Co. in its No. 1 Olson, in the NEc of 13-29-1W, Kay county. This test is located about three miles north and east of production, the nearest field being the north end of the Braman pool, sometimes known as the Duncan field, so named from the name of the owner of the discovery farm.

The new Marland well apparently is in the Wilcox sand, the same deep horizon which proved so prolific in the Tonkawa and Garber fields after development in upper horizons had been completed. Sand was found in the new well at 3880 feet, and, at two feet in, the well was flowing 35 barrels an hour. It was flowing by heads at the rate of one head of 35 barrels each hour. The corrected gravity of the crude, as tested by the Roxana Petroleum Corp., which owns a half-interest in the well, is 47.6 degrees.

This well is just barely in Oklahoma, the section in which it is located having for its north line the dividing line between that state and Kansas. In other words, the north offset to the well will be in Kansas and the east offset in Oklahoma. A well making better than 900 barrels of such valuable crude has all the earmarks of the opening of an important new field, and developments in the vicinity will be followed with much interest.

The south Braman field, which is about nine miles south and west of the new Marland well, has been enjoying a comeback of late, its production having been increasing for several weeks as a result of a number of big wells drilled in by the Comar Oil Co. The biggest recent well in this pool is the Comar's No. 3 Biddle, in the SEc NE SW of 5-28-1W. This well started off at the rate of 127 barrels an hour at total depth of 2378 feet, or 10 feet in the Stalnaker sand, and is still making better than 2000 barrels a day. In the two portions of the Braman district, there are now 56 wells producing about 13,200 barrels daily.

Indian Territory Well Holds Up

The wildcat well of the Indian Territory Illuminating Oil Co. in Seminole county, apparently is even a better well than at first reported, as its production the past 24 hours was 995 barrels after the well had been deepened one foot. Its total depth it now 4012 feet, it having topped the Hunton lime at 4006 feet. This well is located in the NWc NW SE of 24-9-6, which places it about 15 miles from the Wewoka field to the southeast and the same distance from Cromwell to the northeast.

Another Seminole county wildcat which has been followed with interest in recent weeks is the Bryan Bros. and Emery No. 1 Walker, in the SEc of 4-7-6, about 10 miles southwest of Wewoka. This well has been swabbing about 100 to 110 barrels daily, and the operators have now decided to run a string of tubing and put it on the pump. It is estimated good for 75 barrels a day as a pumper.

The Amerada Corp.-Morgan & Flynn wildcat three miles west of Weleetka, Okfuskee county, is not looking so good just at present, having been drilled into water. This well, which is known as the No. 1 Alberty, is located in the NWc NW SW of 18-10-11. It had the top of the Lyons sand at 2968 and drilled into it to 2980 feet, where it had about 1700 feet of oil in the hole. When this showing was found, the 5-inch casing was underreamed down to 2945 feet, after which the well was drilled deeper and given a shot of five quarts from 2961 to 2971 feet, with total depth 3000 feet. After the shot, water appeared and the hole is now full of water. It is probable that this water will be cased off and the well drilled on down.

In the Fuhrman pool, south of the Papoose field, Hughes county, the Mid-Kansas Oil & Gas Co. had bad luck with its No. 1 Harjo, in the NEc of 34-9-9, on the south edge of the pool. This well had a hole full of water in the Lyons sand from 3380 to 3388 feet.

West of the town of Wewoka, T. B. Slick is swabbing 50 barrels a day from his No. 2 Jackson, in the SEc SW SW of 14-8-7. This well had sand from 3210 to 3219 feet and the oil is reported to test 37.9 degrees gravity. It will probably be drilled deeper next week.

The Ingalls Pool, Payne county, has come under control of the Prairie Oil & Gas Co., through its purchase of the Olean Petroleum Co. This field is now producing 6354 barrels daily, from four wells, one of which belongs to the Roxana Petroleum Corp., the remaining three belonging to the Prairie. Since taking over operation of the properties, the Prairie has changed the names by which the various leases will be known. The Pleasants lease, on which the discovery well is located, and which comprises the NW of 24-19-4, is now called the Bolton, and its one well is making 1385 barrels a day. What was formerly known as the Farren lease is now called the Ellis. It comprises the NE of 23-19-4, with No. 1 well, in the northeast corner, making 1317 barrels daily. The Richardson lease, comprising the SE of 14-19-4, with a well in the southeast corner making 1610 barrels daily, is now known as the Irwin. The Roxana's one well on the Stover farm is making 2042 barrels a day.

Setback for Fairfax

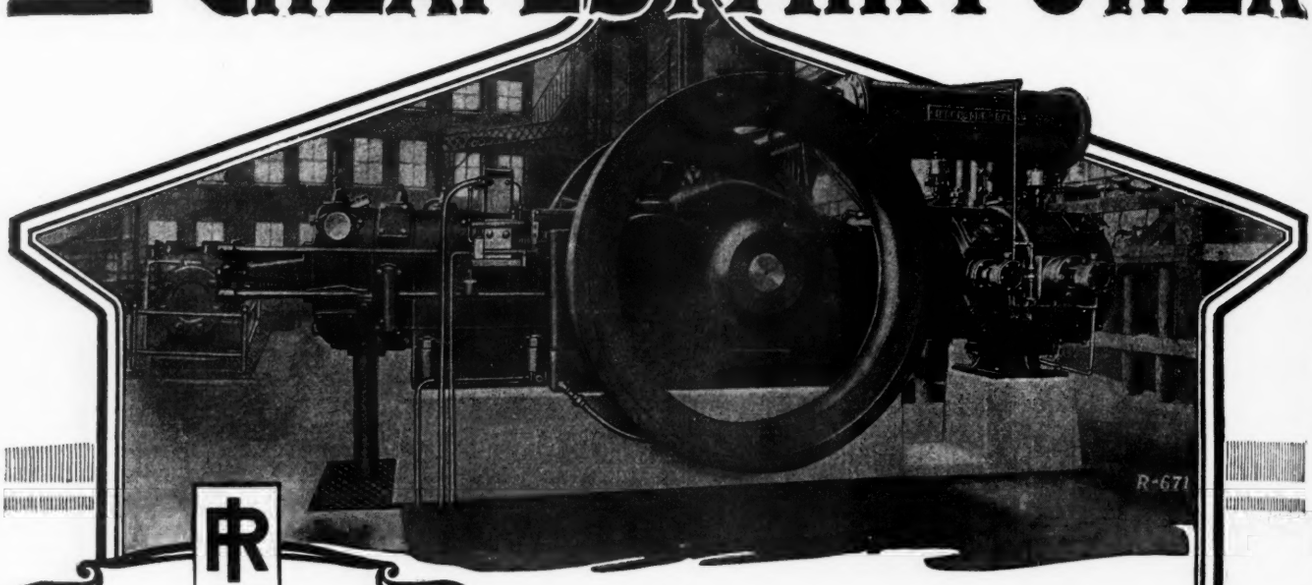
Developments in the Fairfax pool, Osage county, six miles south of production in the Burbank field, which had been going along favorably with the recent completion of two fair wells by the Prairie Oil & Gas Co., received a setback during the past week. This came about through ill fortune of the Indian Territory Illuminating Oil Co., which got a hole full of water in its No. 1, in the NWc NE of 28-25-6, a south west diagonal offset to the Prairie's discovery well. This well had the sand at 2731 feet, and is now shut down for orders.

Jumping from the Osage over into northwest Oklahoma, the first well to attract our attention is that of the Pender Petroleum Co., its No. 1 Clock, in the NWc SW SW of 4-21-3W, Garfield county. This well, which lies about two and a half miles south of Garber production, and is cut off from that field by several deep dry holes, is now being put on the pump, and is estimated good for about 50 barrels daily. It is in sand from 2267 to 2277 feet.

The D. W. Franchot well, reported last week as having made an interesting deep sand showing in the north end of the Garber field, has been drilled to total depth of 4440 feet, after topping the lime at 4348 feet and getting the first oil pay at 4382 feet. It is flowing 400 barrels a day, and probably will not be drilled any deeper for the present. This well is known as No. 16 Lynds, and is located in the SWc of 7-22-3W.

In the old Blackwell pool, Kay county, where big gas wells have for some

The CHEAPEST AIR POWER



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Ingersoll-Rand

Completions in North and Central Texas, Week Ended Mar. 13

Company	Well Farm	Location Survey	Depth	Initial Prod.
Archer County				
Burns-Maxson	2-Jackson	Aldridge	T.S.1544	80
Burns-Maxson	5-Brown	Geraldine	1578–1586	100
Beasley	1-Wolfe	SP	1333–1352	15
Texhoma	1-Wolfe	Poitevant	1293–1300	17
Gulf	2-Hayter	TEL	1452–1454	37
Pandem	9-Cockrell	TEL	1439–1441	80
Pandem	10-Cockrell	TEL	1449–1451	20
Pandem	11-Cockrell	TEL	1449–1451	30
Roxana	1-Cockrell	TEL	1449–1451	55
Roxana	3-Kreeger	TEL	1425–1430	80
Texas	1-Prideaux	Dorsey	656– 662	10
Camp	1-Rocking	BBB&C	1168–1172	90
M & V	4-Kunkle	BBB&C	1171–1178	130
Hammond et al	1-Thorn	Spillers	T.D.2002	Dry
Texas	1-Parrish	H&W	T.D.1802	Dry
Wichtex et al	6-Jackson	Aldridge	T.D.1537	Dry
Burns-Maxson	1-Parrish	Geraldine	T.D.1635	Dry
Burton	1-Wilson	Geraldine	T.D.1650	Dry
Boller	1-Seay	Harris	T.D.1600	Dry
Consolidated	1-Harris	Club Ranch	T.D.1503	Dry
Texhoma	4-Wolfe	Hubble	T.D.1391	Dry
Gulf	1-Coffield	Richardson	T.D.1724	Dry
Maer-Stanforth	1-Porter	Poitevant	T.D.1403	Dry
Gulf	1-DePriest	TEL	T.D.1552	Dry
Hunt-Seigler	2-Cross	TEL	T.D.1444	Dry
Phillips	1-Kreeger	TEL	T.D.1501	Dry
Wampum	4-Kreeger	TEL	T.D.1498	Dry
Pet. Prod	1-Kunkle	Steel	T.D.1305	Dry
Baylor County				
Gatewood-Gwynne	1-Stevens	Colorado	T.D.2260	Dry
Murchison-Fain	1-Portwood	Godden	T.D.1504	Dry
Brown County				
Burt	1-McClatchey	Perry	T.D.1242	Dry
Humble	1-Hodnett	Harris	1060–1070	64
Humble	2-Kilgore	Delgado	1150–1162	90
Cowboy Evans	2-Dunn	Delgado	1105–1110	400
McCarter et al	1-Allen	Delgado	1093–1101	150
McLester	1-Wooldridge	Gaines	1275–1293	100
Callahan County				
Mook et al	7-McDonough	Knight	1425–1431	100
Mook et al	1-Derrington	Anderson	1402–1418	10
Southern	1-Smart	D&D	T.D.2450	Dry
Clay County				
Whitteken	1-Allison	Cherokee	T.D.1805	Dry
Coleman County				
Tex-Pac	1-Powell	Little	T.D.2415	Dry
Allen et al	1-Terry	Coleman	T.D.1120	Dry
Culberson County				
Grisham-Hunter	1-Foster	SL	T.D.3416	Dry
Eastland County				
Tex-Pac	1-Feel	Pease	T.D. 780	Dry
Burkett et al	1-Kimbrough	H&TC	3241–3266	3M
Haskell County				
Adams et al	1-Cobb	Rodrigues	T.D.2750	Dry
Hutchinson County—Panhandle				
Amer. Ref	1-Weatherly	M&C	T.D.3327	Dry
Mitchell County				
Atlantic	2-Womack	T&P	2919–3075	135
Calif. Co	1-Swenson	TP	T.D.3065	94
Cal Co	15-Morrison	TP	T.D.3040	50
Montague County				
Texas	3-Rowland	Chambliss	1121–1131	35
Waite Phillips	1-Cunningham	Hodge	T.D. 710	12M
Palo Pinto County				
Spoore et al	1-Shephard	T&P	T.D.1365	Dry
Reagan County				
Big Lake	37-Univ.	University	2429–2430	700
Big Lake	52-Univ.	University	2932–2360	60
Big Lake	53-Univ.	University	3040–3057	135
Shackleford County				
Phillips	8-Lynch	BAL	3027–3032	190
Roeser-Pendleton	1-Cook	ET	T.D.3007	Dry
Stephens County				
Brown	4-Eakin	LAL	3220–3230	1½M
Tex-Pac	61-Binney	TP	1463–1480	50
Clark-Hooker	2-Litton	TP	1703–1733	28
Mid-Kans	7-Hill	TEL	3154–3163	125
Throckmorton County				
Associated	3-Cummings	CIR	T.D. 975	Dry
Tom Greene County				
Church et al	1-Williams	Tom Greene	T.D.3009	Dry
Wichita County				
Gulf	1-Parker	H&GN	T.D.3001	Dry
Staley-Empire	2-Hines	H&GN	897– 901	15
Mitchell	1-Waggoner	Wallis	1525–1526	37
Wilbarger County				
Milham	1-Waggoner	H&TC	2405–2407	50
Goss	1-Woodward	Waggoner	T.D.2472	Dry
Travis	Zipperle	H&TC	T.D.2925	Dry
Landreth	4-Waggoner	H&TC	T.D.2638	Dry
Young County				
Gulf	1-Richardson	TEL	T.D.1500	Dry
Gulf	1-Boley	TEL	T.D.1521	Dry
Atlantic	1-Wells	TEL	T.D. 903	Dry
Bridwell et al	1-Farmer	Anderson	1066–1076	30
Texas-Prairie	4-Boren	Newman	1063–1081	130
Clark et al	4-Bishop	TEL	991– 995	40
Carter	2-Benson	TEL	915– 938	25

Completions in North Louisiana and Arkansas, Week Ended Mar. 11

Company	Well	Location	Depth	Yield
Louisiana—Urania				
Atlantic Oil Prod. Co	Tullos No. 1	26–10–1E	1526	150
Ayers Brothers	Urania No. 2	13–10–1E	2200	dry aband.
O. W. Clark, trustee	Gaharan No. 1	26–10–1E	701	dry aband.
O. W. Clark, trustee	Russell A-1	26–10–1E	1560	60
O. W. Clark, trustee	Tullos No. 2	23–10–1E	1560	50
W. W. Hawkins, trustee	Sadie York No. 1	25–10–1E	1545	350
La. Oil Ref. Corp	Bass No. 1	25–10–1E	1530	100
Ohio Oil Co	Urania No. 1	24–10–1E	1574	15
Caddo Parish—Caddo District				
Gulf Refining Co	Ferry Lake No. 225	21–20–16	2869	s.w.aband.
Gulf Refining Co	J. H. Herndon No. 9	15–21–15	1701	15
Odell & Lawton	Red Bayou No. 4	15–21–15	1640	20
Schrader et al	Lane No. 2	15–21–15	1692	10
DeSoto Parish—Naborton				
Gulf Refining Co	Willis Williams A,10	31–13–11	2560	s.w.aband.
Waskom—Harrison County				
Magnolia Pet. Co	J.M.Furrh No.1	Jas.Shadoins HRS	3080	dry aband.
Arkansas—Lisbon				
E. M. Jones	Andress No. 1	16–17–16	2140	150
Union County—Upland District				
Rovenger Oil Corp	Harrell No. 1	15–17–16	2158	25
Simms Oil Co	Dumas A-2	9–17–16	2095	60
Smackover				
Arkansas Drilling Co	Turnage No. 2	34–13–16	2395	s.w.aband.
Humble O. & R. Co	H. Laney No. 4	31–13–15	2365	50
Magnolia Pet. Co	Shirey Fee No. 2	30–13–16	2275	10
Roxana Pet. Co	Berg 4-A	28–13–15	2595	125
Southern Oil Purch. Co	Freeman-Smith Lbr.Co. No. 1	19–14–15	2715	dry aband.
Amerada Pet. Co	Galloway No. 5	4–16–15	2380	35
W. R. Keever	Sanford No. 3	17–16–15	2675	80
Lion O. & R. Co	Murphy C-5	8–16–15	2638	75 10m.ft.gas
Natural Gas & Fuel Co	Hill A-5	5–16–15	2553	20m.ft.gas
Taurman et al	Flenniken No. 1	17–16–15	3025	s.w.aband.
Magnolia Pet. Co	Werner Co. No. 1	1–16–17	2260	40
Gulf Refining Co	C. B. James No. 10	6–16–15	3235	s.w.aband.
Gulf Refining Co	J. W. Primm No. 5	1–16–16	2846	s.w.aband.
Union County—Upland District				
Joyce Richardson et al	Meek No. 1	22–19–15	2995	dry aband.

time been the order of the day, the Black Gold Oil Co. has a well making 110 barrels of 44 degrees gravity oil daily in its No. 1 Moore, in the NWc of 10-27-1W. This well was completed as a 20-million cubic foot gas well last November in sand from 3428 to 3433 feet. It was deepened one foot during the past week and started making oil. In all probability it will be drilled still deeper at once.

In Kansas, the Roxana Petroleum Corp. has an interesting showing in its No. 1 Vickery, in the SWc SW SE of 7-35-3E, Cowley county, some 10 miles south of production in the Rainbow Bend field. This test had sand from 3415 to 3467 feet, going into the lime at 3468 feet, and is now standing with about 400 feet of oil in the hole, from which 20 barrels were swabbed yesterday.

The Carter Oil Co. and Fleeger well in Kingman county, Kansas, which caused a deal of excitement some weeks ago, is making between 190 and 220 barrels of fluid daily, of which at least 52 per cent is water and b. s. with 48 per cent oil. The well is therefore making about 95 barrels of good oil daily. Although a number of locations were announced soon after the discovery well came in, only one well is drilling in the vicinity, that being the east offset, owned by T. B. Slick. Another well soon to start up in the vicinity is the Cassidy Oil Corp. No. 1 Yeoman, in the SEc of 35-28-7W. The Fleeger discovery well is in 16-27-7W.

In the Texas Panhandle, Amarillo district, the best well of the week was that of H. F. Wilcox Oil & Gas Co.

Completions in Oklahoma and Kansas, Week Ended March 13

OKLAHOMA

Carter County

Company	Well No.	Description	Depth	Initial Production
Magnolia	1	C NE NW SW 34-1-3W	2995–3002	286
Humble	6	NWc NE 22-2-3W	3065–3080	170
Strum	1	SEc NE NE 32-2-3W	2292–2310	120
Coline	5	C SE SW NE 7-2-2W	1593–1595	17M
Athey et al	1	NEc SE 18-2-2W	2014–2021	7M
Coline	2	C SE NW SE 8-3-2W	2412–3153	35
Amerada	15	C NW NW SE 28-5-1E	1216–1236	65

Comanche County

Westheimer et al	1	C NE NW SE 30-2-9W	2090–2092 OWD	50
Carter	1	NWc NE SE 30-2-9W	T.D.2340 OWD	Dry

Creek County

Billingslea	1	SEc NE 12-18-8	2295–2343	10M
W. Phillips	1	NWc SE SE 27-17-8	3128–3134	625
Wilcox	9	NWc SW NE 2-15-8	3136–3155	15
Tidal	8	NEc SW SE 17-15-8	3198–3215	325
Bu-Vi-Bar	1	SEc NE NW 22-15-8	720– 721	2½M
Gypsy	16	NEc SW NW 6-18-12	2157–2166	1440
Tex-Pac	5	NWc NE SE 21-17-9	2481–2519	720
Skelly et al	5	SWc NW NE 31-15-9	1246–1276	144
Black Gold	1	NWc SW SE 18-17-8	T.D.3711	Dry
Wilcox	1	NEc NW SW 5-14-7	T.D.4209	Dry
Williams et al	2	SEc SW SW SE 10-17-11	T.D.1702	Dry
Riverland	1	NEc SW SW 18-16-11	T.D.2985	Dry
Hilt et al	3	CWL NE SE 7-16-12	T.D.2220	Dry
Prairie	2	SEc NE NW 12-14-8	T.D.3884	Dry

Garfield County—Garber

Roxana	12	C SW NE SW 18-22-3W	3658–3678	196

Garfield County

Pender	1	C NW SW SW 4-21-3	2267–2277	30

Garvin County

Magnolia	10	CNL NW SW NW 16-1-3W	1590–1594	10M
Carter	6	SEc NW 17-1-3W	1760–1772	20
Bedman et al	1	SEc NW 21-4-1W	T.D.3001	Dry

Grady County

Garvin	2	NWc NE SE SW 35-3-5W	1501–1511	65
Pauline et al	1	NWc SW 23-5-6W	T.D.3020	Dry

Jefferson County

Hambro-Humble	7	NWc NE SE 33-6-5W	1384–1390	18
Humble-Hambro	3	CWL SW NW 34-6-5W	1213–1230 OWD	15

Kay County

Comar	1	NWc SW SE 31-27-2E	2470–2507	7
Marland	1	SEc SE NE 1-26-2W	2954–2974 OWD	100
Miss. Valley	1	C NE NE NE 22-27-2	T.D.3997	Dry

Kay County—N. Braman

Comar	8	SEc NE NW 21-29-1W	2328–2365	43

Kay County—Braman

Comar	1	SEc SE NW 5-28-1W	2309–2317	1871

Lincoln County—Davenport

Amerada	3	NEc SE 2-14-5	3399–3442	250
Carter	7	NWc NE NE 2-14-5	3333–3407	75
Magnolia	14	SWc SE NW 2-14-5	3302–3400	200
Skelly	6	NEc SE NE 2-14-5	3380–3415	240
Texas	7	NEc SW SE 2-14-5	3314–3380	875
Shaffer	2	SEc NE NE 10-14-5	3347–3402	125
Gypsy	6	NWc SW NW 11-14-5	3354–3383	225

Okfuskee County

Riverland	1	SWc SE SW 19-11-11	2882–2887 OWD	28M
Minnehoma	10	SEc NE NE 24-11-11	3380–3438	4½M
Phillips	1	NWc 22-13-8	T.D.2443	Dry
Independent	1	NWc SE 15-12-11	T.D.3575	Dry

Okmulgee County

Sheldon et al	2	SWc NW SW SW 20-16-12E	2556–2572	10
Sheridan	3	CNL SE NE 4-15-11	1978–2017	30
Baroara	3	CWL NE NW 35-15-12	1881–1897	16M
Wheeler et al	1	SWc 31-13-12	2515–2518	20
H & M	3	NWc SW NW 16-11-12	2654–2665	10
Webb et al	1	NWc SE SE 32-11-12	1582–1663	25
Wick	5	CSL SW NW 10-14-14	1467–1482 OWD	10
Selby	13	CNL SW SE 34-14-14	1144–1151	5
Selby	29	CNL SE NW 35-14-14	1119–1158	15
Wineland	12	NEc SE NE SE 8-14-15	1559–1586 OWD	35
Roxana	6	SWc NW SE 15-13-14	2436–2448	360
Lambert	3	C SE NW 20-13-15	746– 748	¼M
Gilliland	1	SWc SE SW 23-16-14	T.D.2255	Dry
Kellough et al	4	SEc NW SE 29-15-11	T.D.2992	Dry
Simmons et al	8	CNL S½ SW NE 12-14-11	T.D.3745 OWD	Dry
Nicholson	1	CSL N½ NE 23-11-13	T.D.2540	Dry

Osage County—Burbank

Skelly	6	NEc SE NE SW 2-27-5	2920–2978	175
Phillips	7	SWc NE SW SE 20-27-6E	2890–2936	100

Osage County

45 Oil	40	CWL E½ W½ NE 5-25-12E	1553–1600	8
Twin State	2	NW NE SE 13-23-8	1465–1490	130
Delmar	1	NWc NE 20-23-10	2158–2165	1¼M
I. T. I. O	14	CWL NE NW SE 15-29-10	988–1014	25
Oliphant et al	6	SEc NW SE NE 15-29-10	1050–1083	85
Thompson-Black	1	C SE SW SE 20-22-8	T.D.2060	Dry

Pawnee County

Fern	2	NWc SW NW 20-20-6	3112–3132 OWD	20
De Long	1	C SE SW SW 29-21-8	T.D.2991	Dry
Watchorn	12	C NE SE SW 33-23-3E	4057–4078	177

Payne County—Mehan

Roxana	1	SWc 18-19-4E	3713–3726	1975
Olean	1	NEc 23-19-4	3721–3728	1157
P & R	2	NEc SE SW 7-18-5E	2820–2847	60
Magnolia	3	SEc NE 6-17-4	3691–3719	11M

Stephens County

Amerada	4	NWc NE NE 32-1-8W	2272–2276	15
Commercial	10	NEc NW SE SW 12-2-8W	1492–1528	15
Montgomery	1	C SE SE NW 29-2-5W	T.D.2264	Dry
Mudge	6	NWc SW NE SE 22-1-5W	T.D.2122	Dry

Tulsa County

Vance	18	NEc NW 3-18-12	1990–2014	1½M
Green et al	1	NWc NE NW 24-18-13	1553–1562	10

Wagoner County

Talbot	1	SWc SE NW 10-18-16	1116–1120	8M
East. Okla	5	CSL SE NW SW 21-18-16	690– 698	20
Mitchell	2	CSL NW SE 35-17-16	1406–1426	5½M
Whaley	1	NWc SW NE 36-16-17	779– 818	2M
Perry	1	C NW SW 35-18-16	T.D. 600	Dry
Turelkild	3	NWc SE SE 19-18-18	T.D. 720	Dry
Knox-Shouse	5	NEc NW SE NW 15-17-16	T.D. 808	Dry

KANSAS

Butler County

Empire	85	CSL SW NE NW 28-25-5	540– 550	25
White Eagle	2	NWc NE SW 27-26-7	2121–2131	250
Empire	13	CNL NE NW NE 35-27-4	2550–2604	35
Skelly	2	NWc SW NW 13-25-3	T.D.3129	Dry
Vickers	1	NEc NW 9-27-7	T.D.2778	Dry
Amerada	2	NEc NW SE 22-27-7	T.D.2759	Dry
Phillips	1	SEc NE SW 22-27-7	T.D.2765	Dry
Miss. Valley	1	SWc NW SW 14-28-6	T.D.2785	Dry

Chase County

Dingee et al	1	NWc NE 1-22-9	T.D.2266	Dry

Coffey County

Burge et al	1	NWc 29-19-16	T.D.2065	Dry

Cowley County

Buckeye	1	SWc SE 25-32-4	T.D.3442	Dry
Empire	2	SWc NW NW 5-31-6	2825–2863	25
Southwestern	10	NEc SE NE 6-31-6	2845–2895	50
Slick	7	NEc SW NE 19-32-3	2591–2620	100
Hull	14	CEL NE SW NE 24-32-4	2971–3050	100
Slick-Marland	3	SWc NW 19-33-3	3217–3227	12

Elk County

Ohio Fuel	1	C NE SE 18-29-10	1278–1293	2M
Gillespie	1	NEc SW 29-31-11	1952–1969	2½M
Empire	2	SEc NW SW 23-31-10	1355 T.D.	Dry

Greenwood County

McGinnis-Parrish	1	SWc NE 22-23-12	T.D.1835	Dry
Cooper et al	1	SEc NE NE 26-24-11	T.D.1947	Dry
Cruzan-Parker	1	NWc SE 10-25-9	T.D.2250	Dry
Empire	2	NWc NE NW 6-22-10	2231–2291	200
Tneta	6	SWc SE SE 8-22-10	2265–2324	100
Manhattan	2	SWc NW NE 12-22-10	2041–2123	450
Mid-Continent	6	NEc SW NE SW 18-22-11	2077–2110	50
Mid-Continent	7	SE NW SW 18-22-11	2060–2089	75
Braden et al	1	SWc SE SE 22-22-13	1817–1828	75
Manhattan	5	NWc SW 25-23-8	2460–2496	75
Manhattan	6	NWc SW SW 25-23-8	2517–2550	100
Skelly	2	SWc NW NW 1-23-9	2333–2397	185
Phillips	9	NEc NW NE SW 19-23-9	2536–2633	75
White Eagle et al	3	CNL SW NW SE 19-23-9	2523–2567	200
Davis et al	2	NEc NW NW 22-23-9	2347–2388	20
Mid-Continent	8	SEc NW NE 29-23-13	1696–1709	25
Foster	2	NWc 26-24-12	1648–1671	10

Lyon County

Edwards et al	1	NEc NW 14-21-10	T.D.2185	Dry
Ritchey-Moore	3	SEc NE SW 34-21-10	T.D.2218	Dry
Titus et al	1	SWc NW SE 34-21-10	T.D.2250	Dry

Phillips County

Hood-Craine	1	NWc NE 13-5-18W	T.D. 310	Dry

Rice County

Jasper-Bescka	1	SWc NE 10-18-6	T.D.3511	Dry
Hipple et al	1	NWc SE 35-20-6	3362–3439	75

Russell County

Snowden-McSweeney	2	NWc SE SW 32-11-15	2866–2870	250
Link	1	SWc SE SE 19-11-15	T.D.3220	Dry

Sedgewick County

Allison et al	1	C NE 21-29-3	T.D.4309	Dry

in Gray county, south of the town of Pampa on the Santa Fe railroad, and some 60 miles east of Amarillo. This well is known as No. 2 Worley & Reynolds, and is the second producing well completed by the company, the first one making about 50 barrels daily. The new well is located in Sec. 62, I. & G. N. R. R., block 3. It had top of sand at 2865 feet and at four feet made 200 barrels in the first eight hours. For the first 24 hours it made 750 barrels of 38 gavity light-colored crude. It has now been drilled 14 feet in the sand, its total depth being 2879 feet.

MIDDLETOWN, N. Y.—A modern service station will be opened here on April 1 by T & T Oil Co., handling "That Good Gulf Gasoline."

LEXINGTON, KY.—Great Southern Refining Co., with headquarters here, has completed a bulk station at Corbin, Ky., which was opened on March 1.

PHILADELPHIA, MISS.—Standard Oil Co. of Kentucky has just completed a service station here. G. E. Webb has leased the station and is enjoying good business, according to reports.

Consider the owner of a Dubbs Cracking unit He worries not about the cost of fuel oil Neither does he have to confine his charging stock to the lighter (and more expensive) fractions of the crude

He uses gas oil, fuel oil or the heaviest Smackover crude run raw and direct to the Process And in every case he obtains a greater gasoline yield than he could with any other process

Universal Oil Products Company
Owners of the Dubbs Process
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takes the "guess" out of welding

Welders who work with Page-Armco Steel "Processed" Welding Wire and Electrodes do so with full confidence that the job they are doing will turn out right.

They know from experience that the exclusive Page method of "Processing" all wire and electrodes to meet the exact requirements of every class of work assures satisfactory results—and takes the guess out of welding. As a result, users who specify Page "Processed" Wire or Electrodes save their welders' time, eliminate spoiled work and find their costs considerably lessened.

Page Mild Steel Gas Welding Wire and Electrodes, Page-Armco Wire and Electrodes and Page High Carbon Wire and Electrodes have proven themselves superior wire. We invite you to test them under the most exacting conditions of your shop and judge for yourself.

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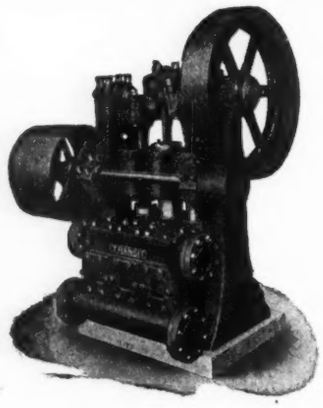

TRANSIT *Refinery* PUMPS

Bulletins on Request.

National Transit Pump & Machine Co.

OIL CITY, PA.

District Offices: **New York, Philadelphia, Tulsa, Cleveland, Pittsburgh, Houston and Denver.**

"I Wish I Was in Peoria" Comes to Pass

George W. Coldsnow

ST. LOUIS, March 15.—Back in the Chicago offices of the Standard Oil Co. of Indiana, they must have heard about George W. Coldsnow, assistant manager of the St. Louis branch office, singing that popular song "I wish I was in Peoria." For recently they appointed him manager of the Peoria branch office.

Mr. Coldsnow has been associated with the Indiana Standard since 1911, when he was hired as city salesman at Kansas City. George W. was born on a farm in western Kansas and among his early ambitions was one to become a cow-puncher. According to his friends, the nearest he came to realizing this ambition was to hold a job at a local grocery store in the capacity of teller. He would tell the horses to get over so he could harness them.

After eight years of service in selling for the Standard Oil Co. he was appointed district superintendent in Kansas City and two years later transferred to the St. Louis branch. In November, 1923, he became assistant manager of the St. Louis office under T. B. Clifford. Employes under his jurisdiction presented him with a valuable diamond pin upon his departure from St. Louis.

Mr. Coldsnow is replaced by R. A. Miller, formerly district superintendent at Evansville, Ind., with 18 years of service with the Standard Oil Co. to his credit.

CLIFTON FORGE, VA.—Independent Gas & Oil Supply Corp. just completed an office building here.

INDIANAPOLIS, IND.—The Plaza Oil Co. is installing a new washing system for automobiles, which will wash 100 cars per day, according to R. N. Daugherty, general manager.

The Holmes-Manley *Cracking* Process

THE TEXAS COMPANY and its Licensees have *conclusively proven* the merits of this process by successfully charging over 75,000,000 barrels of oil. - - -

The Licensee receives:—

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3. *The Benefit of Future Developments*

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Apply to

R. C. HOLMES, *Vice-President*

17 Battery Place, New York, N. Y.

Fuel Oil Consumed by Railroads Declined 3.86% in 1925

NEW YORK, March 15.—Railroad consumption of fuel oil by locomotives in the United States in 1925 totaled 59,355,000 barrels, as compared with 61,738,000 barrels in 1924, according to returns received from the principal railroads by the American Petroleum Institute. This is a decrease of 2,383,000 barrels, or 3.86 per cent under 1924.

Of the total consumption the past year, 54,075,000 barrels consumed was domestic oil, as compared with 51,522,000 barrels of domestic oil used during 1924, and 5,280,000 barrels was foreign fuel oil, as compared with 10,216,000 barrels of foreign fuel oil in 1924.

The districts consuming the largest amount of fuel oil during 1925 were the middlewestern and southwestern districts, consumption totaling 27,386,000 barrels, 24,573,000 barrels of which was domestic fuel oil and 2,813,000 barrels of foreign fuel oil. This compares with 29,153,000 barrels in 1924, of which 21,049,000 barrels were domestic fuel and 8,104,000 barrels foreign fuel oil.

The southwestern Pacific district, which was the largest consumer in 1924 with a consumption of 23,924,000 barrels, was the second highest consumer in 1925 with a total of 22,940,000 barrels in 1925, all of which was domestic fuel oil in both years.

Consumption in the northwestern district in 1925 totaled 6,637,000 barrels, compared with 7,060,000 barrels in 1924. Of the 1925 consumption total, 6,555,000 barrels was domestic oil and 82,000 barrels foreign.

Locomotives in the southern district consumed 2,278,000 barrels in 1925, compared with 1,470,000 barrels in 1924, all of which was foreign fuel oil in both years.

In the eastern district, consumption amounted to 114,000 barrels, of which 7000 barrels were domestic fuel oil and 107,000 barrels foreign fuel. This compared with 131,000 barrels consumed in 1924, of which 7000 barrels were domestic fuel oil and 124,000 barrels foreign fuel oil.

Adds Trucks and Storage Tanks

ARABI, LA.—New storage tanks and a new two-ton Mack truck have been added recently to the equipment of Weixel & Janssen, Inc., jobbers of gasoline, kerosene, oils, and greases. Trucks operated by the company now total five.

The company was organized in January, 1922, by former employes of a small oil jobbing company in New Orleans. On March 13, 1924 it was incorporated and offices established at Arabi, in Parish county, adjoining New Orleans. Offices of the company are on the state highway leading out of the city. The service station and offices are beng remodeled.

Officers are: A. F. Weixel, president; I. J. G. Janssen, vice president; and L. W. O. Janssen, secretary and treasurer.

Oil Man Again Heads Commerce Chamber

CARLINVILLE, ILL.—Frank A. Muench, president of the Diamond Kerosene Co., Inc., with headquarters here, and a director of the National Petroleum Marketers Association, Chicago, was unanimously re-elected president of the Carlinville Chamber of Commerce at its annual meeting here on March 5.

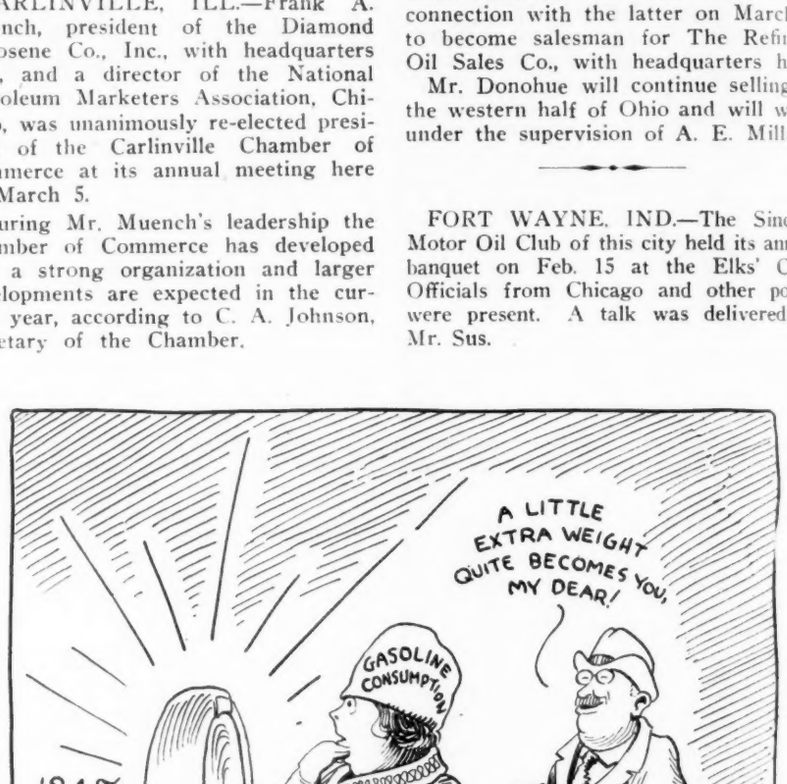
During Mr. Muench's leadership the Chamber of Commerce has developed into a strong organization and larger developments are expected in the current year, according to C. A. Johnson, secretary of the Chamber.

HOUSTON, March 13.—Dana H. Kelsey, vice president of the Prairie Oil & Gas Co., has returned to headquarters at Independence, Kan., after about three weeks spent at St. Petersburg and other points in Florida. He was accompanied by Mrs. Kelsey. They made the return trip by boat to New Orleans, thence to Houston and Fort Worth on their way back to Independence.

DAYTON, O.—E. A. Donohue, who was formerly salesman for the Tide Water Oil Co., and lately with the Robinson-Patterson Oil Co., severed his connection with the latter on March 1, to become salesman for The Refiners Oil Sales Co., with headquarters here.

Mr. Donohue will continue selling in the western half of Ohio and will work under the supervision of A. E. Millard.

FORT WAYNE, IND.—The Sinclair Motor Oil Club of this city held its annual banquet on Feb. 15 at the Elks' Club. Officials from Chicago and other points were present. A talk was delivered by Mr. Sus.



LET'S HOPE SHE NEVER GOES ON A DIET.

The Editor's Viewpoint

National Petroleum News

Has Q. D. A. Been Stretched Too Far?

ANY scheme which makes for less cost and particularly a saving to the public, receives every one's endorsement, even though it may hurt some individual's business. However, there are often two points to such schemes, one that they do not always in actual practice produce the savings they do in theory, and second, they collide with human nature.

The Standard of Indiana's quantity discount plan, now under attack in Wisconsin, whereby a business house can make one contract with the Standard at one point for all its oil requirements and be supplied at all other points where it is operating, and that at a discount, is in theory probably a move in the right direction. However, to determine whether it is really worth while consider the two points suggested.

What is the actual saving in cost on this kind of an agreement? The more one studies that the more one wonders if there is any discoverable saving. If the oil companies had salesmen calling on all concerns receiving quantity discounts, a salesman for each sale say, one might be able to appreciate an expense of salesman's time and operating cost that could be figured in the fraction of a cent per gallon of gasoline and oil.

But one wonders, in view of the way most of this business has been handled, if there can be any saving in selling time measured. And against this saving the company must put the extra cost of bookkeeping on these inter-city transactions.

Perhaps the Standard can show a real saving but one standing on the side lines, wonders if a pencil can be sharpened to a fine enough point to get at the exact saving.

On the second point is the human equation, the relationship between the customer's local manager and his staff and the local owner or manager of oil companies other than the Standard. Business has learned that some efficiencies carried to their maximum rub human nature the wrong way and cost more than they are worth. No organized effort is needed to upset these hair line ideas, human nature takes care of them when given a little time.

Most if not all of the concerns that can take advantage of the quantity discount, sell more or less to the oil industry as a whole. They have and always will have competitors, who either cannot or will not enter into such agreements. Obviously, over a bit of time, if the quantity discount hurts the local oil man enough, he will switch his patronage to those he feels more friendly to. This friendship business is much stronger in a small town than in a large one, too. Maybe these big companies will not notice this loss of business but their local managers who have more to do with getting business in their home towns, are going to think and talk more about the value of the oil man's business than a small saving which is only measured in the home office miles away.

Furthermore, as long as a measurable saving is offered on a quantity discount all sorts of clubs, societies and what not will strive to set up some form of purchasing organization to take advantage of it, when there will be lots of grief in the Standard offices. If the Standard gives way a single inch it will be only a short time when the minimum quantity discount price will rule pretty much for every one. Then it won't mean anything except a lower price level, and perhaps not even that for the price that is thus cut would long since have lost its value as a price and perhaps would not be posted if there had not been a discount allowance.

One wonders if the quantity discount idea has not been stretched beyond its working point? If so the Standard will be finding it out before long, if it hasn't already.—W. C. P.

More Regulations Proposed

PERHAPS it's just loosely written English, perhaps it's the result of the inherent mania that exists in all official channels in Washington to regulate something or other, and make that regulation as wide and inclusive as possible, that led to proposed rules governing certain features of all service stations being included in the regulations pertaining to the manufacture, mixing and distribution of tetraethyl gasoline recently issued by the Public Health Service.

These rules were drawn up, so the official statement says, in accordance with the investigation the special committee appointed by the Surgeon General made into the hazards to health of ethyl gasoline. They are proposed for adoption by the various states and are to be considered at a meeting of state and national health authorities to be held in May.

If these rules should be adopted by the states and incorporated in state law they would give the public health departments of the states supervision over every gasoline filling station of every oil company. Those stations would have to be registered with the local health authorities. An inspector would have the right to say whether the station was properly ventilated. There would be more graft, petty politics and taxes for the oil companies to stand.

Whether the station handled ethyl gasoline or not would cut no factor in the matter, as the rules now read, although presumably the entire proposed regulations were drawn up to cover the handling of the ethyl lead treated gasoline. The fact that pumps and tanks are outside service station buildings and that attendants at service stations are outside in the open when they are handling gasoline, cuts no figure. There are rules for a certain amount of ventilation of station buildings and specifying the manner in which stations should be cleaned.

If the Public Health Service had in mind only garages handling ethyl gasoline and if its "Proposed Regulations for Automobile Garages, Repair Shops, Service Stations and Filling Stations" covers that wide range only through carelessness, it should correct that impression at once.

If it is trying to prescribe regulations for all places of business servicing automobiles in any respect, and put places of this nature under regulations of state health authorities, riding those through under the guise of providing a safeguard against possible hazard to health from ethyl gasoline, then it should be called upon to do some explaining.

Oil companies should secure copies of these proposed regulations and watch what happens at that May meeting of state and national health authorities.—V. B. G.

Furnace Design Must Be Fitted to Burner To Obtain Higher Efficiency

By J. F. Barkley
Fuel Engineer, Bureau of Mines

IN the course of the government's fuel economy survey of its own power plants, studies and tests have been made of various oil-burning equipments under power-plant boilers. There are now many types of burners being offered in the relatively limited field of power-plant use. The majority of the types used may be grouped into two general classes—those using steam to effect the atomizing of the oil, and those using mechanical means.

Burners using steam have had the most prominence in this field for a long period. The mechanical atomizing type of burner successfully applied on shipboard, however, pointed to a possible betterment in land work. The vision presented itself of a burner that would need no steam for atomizing, that would permit of air inlets or registers compactly arranged as a part of the entire burner, and that would only require the natural stack draft usually available in land boiler furnaces. Hence, rather recently there has been much development along this line, resulting in various types of burners.

In Table 1 are grouped test items chosen from many tests showing representative analyses of the products of combustion obtained with various burners installed in various types of furnaces. In all these tests the burners were handled by experts and represent practically the best attainable for that particular arrangement. The boiler efficiencies ranged from 70 to 80 per cent. It will be noted that the burners using steam for atomizing were able to secure slightly better CO_2 and less O_2 without the presence of CO.

It is hardly proper to name such equipment an "oil burner." The mixing and burning is done in the furnace. It is quite important for it to have the proper shape and size to suit the particular burner used. The differences shown between the various mechanical burners would largely disappear if the correct furnace for each could be arranged.

In the development of the mechanical burner much attention has been given to the devices for twisting the air and spraying the oil, but the important point is what happens after they get into the furnace. A cubic foot of oil at 60° F. requires about 11,000 cubic feet of air at 60° F. for correct combustion. For combustion to progress, it is necessary for a continuous stream of air to pass each small oil volume as it is sprayed into the furnace. The products of combustion must move away from the surface of this oil volume. This means that the air must have a different velocity or direction than the oil. Since twisting movements of air and oil imparted at the burner entrance is soon lost the importance of furnace shape and size is apparent.

In the combustion of an oil particle it is the carbon that is the more difficult to burn. It separates out as soot at the slightest provocation, and causes much heat loss. This may happen due to a chill as meeting with the boiler tubes, or a lack of air at the right moment. This may occur without the sightest indication in the usual flue gas anaylsis. To illustrate, the following data are taken from Bureau of Mines Bulletin 214, by H. Kreisinger and others. These samples were taken at a spot in a furnace just before the gases entered the tubes. They are quite representative, however, of completed combustion in some furnaces.

Per cent CO_2	Per cent O_2	Per cent CO	Soot (Grams per cubic ft.)	Soot (Per cent of carbon in oil)	Heat in soot (Per cent heat in oil)
11.6	5.0	0.0	0.174	9.5	6.8
11.2	5.6	0.0	0.123	7.1	4.8
12.4	3.9	0.0	0.123	6.5	4.4
12.8	4.5	0.0	0.237	11.9	8.0
14.2	2.0	0.1	0.076	3.6	2.4
14.5	1.2	0.2	0.172	7.5	5.0

It will be noted that there is a great heat loss even when there is plenty of O_2 and no CO. In the next to the last sample CO had appeared, but there was less loss due to soot. In general, however, along with CO and low O_2, loss due to soot may be anticipated as shown by the last sample. In ordinary testing practice, the special equipment necessary to determine the soot loss is not always available. The soot loss appears in the heat balance as a high "unaccounted for" loss. The anaylsis of the products of combustion without the soot factor being taken into consideration, may lead to false conceptions, particularly in the correct design of furnaces.

Have Not Always True Guide

For each furnace arrangement there is a certain percentage of CO_2 that gives the best results. The rule of adjusting burners to secure a slight haze of smoke may at times be quite wrong, as this smoke haze can frequently be secured with various percentages of CO_2 for the same furnace. Furnaces in which the carbon of the oil constantly tends to "drop out" as soot often give greater overall efficiencies with consid-

For Refinery Operating Men

Every man charged with the responsibility of keeping down the refinery fuel oil cost by getting high efficiency from his still and boiler furnaces, should read the accompanying paper, the report of an investigation into the relative efficiency of mechanical and steam atomizing oil burners.

Mr. Barkley points out the fuel loss often suffered in power plants through the carbon in the oil separating out in the form of soot when the gaseous mixture strikes a cool surface and this heat loss is not to be caught by the ordinary testing of flue gas for CO_2 content.

He also explodes the theory that keeping a constant thin haze of smoke at the top of the stack indicates necessarily efficient combustion in the furnace. Mr. Barkley has added, we believe, some valuable information to the knowledge of the average man in charge of operating steam raising or distilling equipment—Editor.

Table No. 1—Representative Analyses of Products of Combustion of Fuel Oil Obtained With Various Burners in Various Types of Furnaces

Type of Burner	Temperature of Oil, °F	Pressure of Oil, pounds per square inch	Dry Products of Combustion CO_2 percent	O_2 percent	CO percent
Mechanical, natural draft					
Make "A"	230	121	11.6	5.4	0.1
	185	152	10.2	7.4	0.0
	242	101	10.1	7.4	0.0
"B"	285	195	10.3	6.4	0.0
	252	150	10.6	6.6	0.2
"C"	66	87	12.7	2.9	0.0
	326	248	12.2	4.2	0.1
	254	183	10.4	6.8	0.0
"D"	264	182	11.4	5.3	0.1
"E"	324	205	12.2	4.0	0.2
"F"	286	202	11.9	4.0	0.3
"G"	261	221	11.1	5.7	0.0
"H"	260	139	12.9	3.6	0.1
"I"	204	247	12.4	4.3	0.0
Steam atomizing					
Make "M"	142	46	13.3	2.8	0.0
"N"	194	43	14.1	2.2	Trace
	193	42	13.7	2.5	0.0

erable excess air. The exact way of establishing the correct CO_2 for a furnace is by a test where the water and oil is weighed.

In Table 2 are given some typical examples of the amount of steam required by the two different classes of burners for atomizing and for oil pump and heater. It might be expected that the mechanical type would require more steam for pumping and heating the oil, but in actual practice the amount of steam used is affected by so many factors, such as efficiencies of relatively small pumps and heaters, amount of oil circulated, etc., that this consistency seldom appears, as is borne out by the table. The steam used for atomizing shown in the table is an example of excellent practice, with expert firemen under test conditions. In Figure 1 is given a set of curves showing how this steam and other related factors vary over a period of time and at different boiler loads.

When these various burners are placed in the hands of the ordinary fireman for general operating purposes, the following has been observed: He finds that the mechanical natural draft burner is very sensitive, and requires delicate adjustments to get the best results. Where several burners serve one furnace, each burner has its own peculiarities. Frequently the fireman will get a deposit of carbon in the furnace in the form of a mound two feet high. Later he may burn it up and not just understand how it all happened. The burner is affected appreciably by small changes in the draft, such as are caused by various wind velocities across the top of the stack.

It requires constant attention to maintain any close setting. A damper on the boiler that can be moved extremely small amounts with accuracy, is needed. Careful damper adjustment gives better results than continued adjustment of the secondary air registers.

In general, the fireman is told that he has the best results when he is just getting a light smoke. He is probably warned not to make too much smoke, so he uses plenty of air and does not try to get too near the limit. A test condition of 11.6 per cent CO_2 and 5.4 per cent O_2 drops to 9.6 per cent CO_2 and 7.4 per cent O_2. Under these conditions he usually has a nice looking flame, can carry his load, and he ceases to bother a great deal about refined adjustments for efficiency.

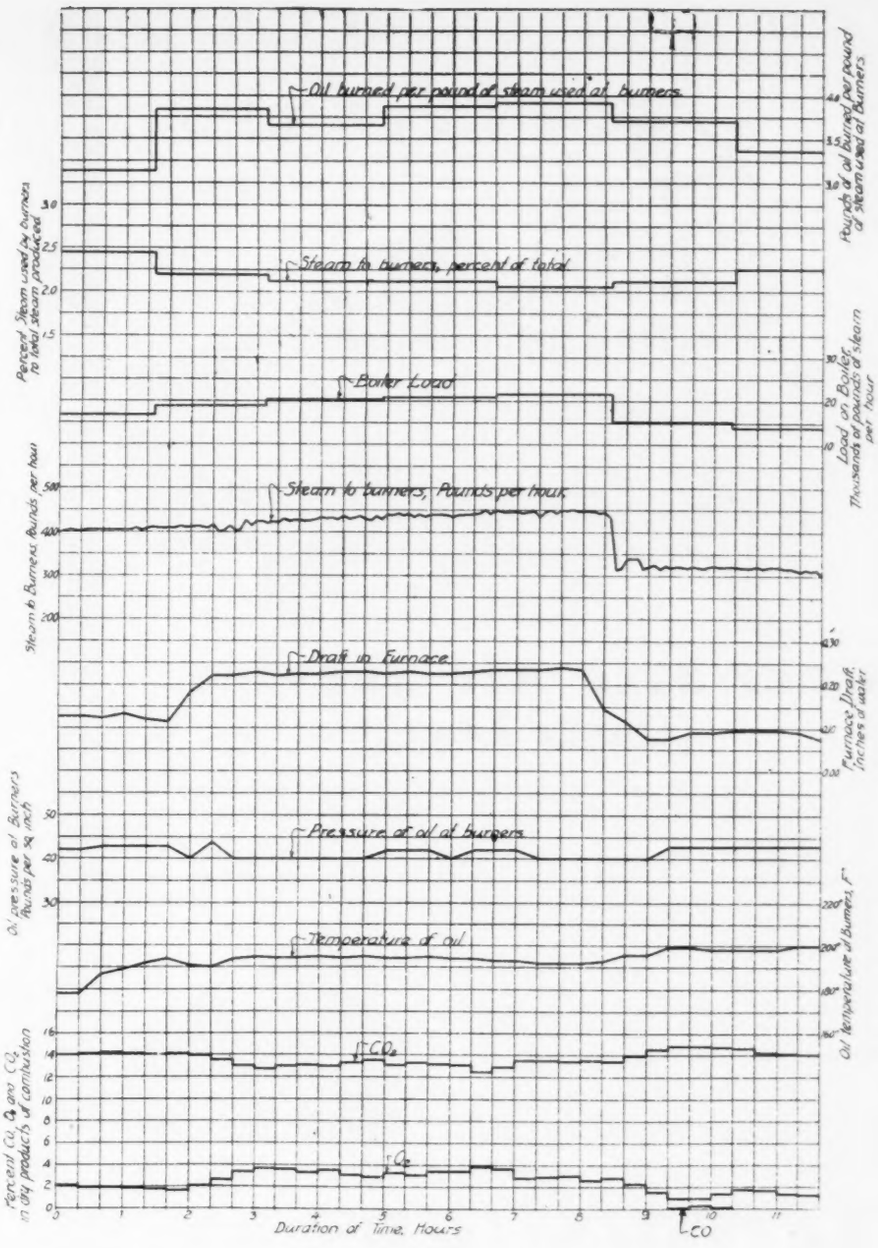

Oil burned per pound of steam used at burners
Steam to burners, percent of total
Boiler Load
Steam to burners, Pounds per hour
Draft in Furnace
Pressure of oil at burners
Temperature of oil
CO_2
O_2
CO
Duration of Time, Hours
Pounds of oil burned per pound of steam used at Burners
Load on Boiler, Thousands of pounds of steam per hour
Furnace Draft, Inches of water
Oil Temperature at Burners, F°
Steam to Burners, Pounds per hour
Oil pressure at Burners, Pounds per sq. inch
Percent CO_2 and O_2 in dry products of combustion
Percent Steam used by burners to total steam produced

FIGURE 1

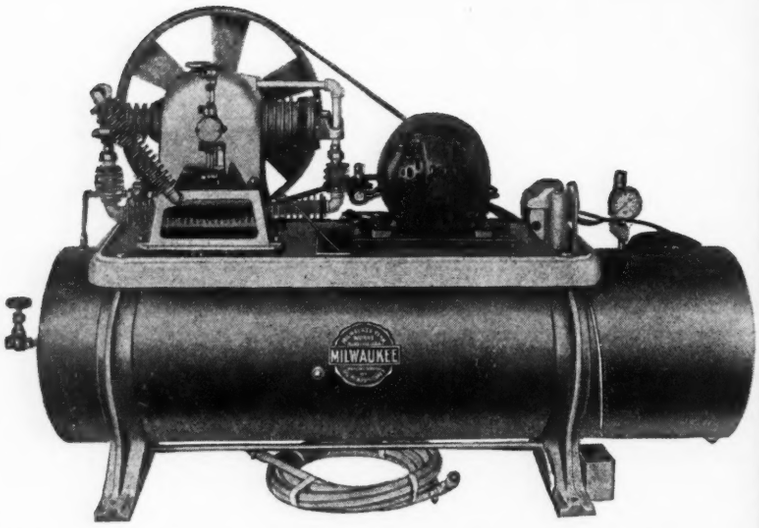
CURVES SHOWING VARIATIONS IN ITEMS OF TEST OF OIL BURNER USING STEAM FOR ATOMIZATION

When the steam atomizer burner is placed in the hands of the regular operating fireman, he seems to be able to operate it more closely to test conditions than he can the mechanical natural draft type. He uses very little more steam. In one instance, a plant engineer declared his steam burners must be using at least 10 per cent of all the steam he made. Whenever there were periods in which he had difficulty in carrying the load, he quickly arrived at the conclusion that the trouble was due to the amount of steam used by the burners. When the steam was measured it was found he was using about 3 per cent. With some types of burners this will rise to as high as 5 per cent. Regular operating conditions of 13 per cent CO_2 are not unusual, for the better class of burner and furnace arrangements.

In making a comparison of the two types discussed, as far as efficiency only is concerned, the following might be considered. The mechanical natural draft type has the advantage of the steam type by, say 2 per cent to 3 per cent of the total heat in the fuel charge-

Table No. 2—Typical Comparisons of Steam Consumption by Different Burners

Type of Burner	Pounds of steam used for oil pump and heater per pound oil as fired	Pounds of steam used for burner per pound oil as fired	Total pounds of steam used per pound of oil	Percent of B. Hp. (total steam developed) used for oil pump and heater	Percent of B Hp. (total steam developed) used for burner	Total per cent of B. Hp. (total steam developed) used	Percent of total heat of fuel to heat in steam used for oil pump and heater	Percent of total heat of fuel to heat in steam used for burner	Percent of total heat of fuel to heat in total used
Mechanical, natural draft..	0.093	....	0.093	0.82	....	0.82	0.61	....	0.61
Mechanical, natural draft..	0.154	....	0.154	1.30	....	1.30	1.00	....	1.00
Mechanical, natural draft..	0.103	....	0.103	0.85	....	0.85	0.66	....	0.66
Steam atomizing.....	0.140	0.295	0.435	1.16	2.45	3.61	0.86	1.83	2.69
Steam atomizing.....	0.184	0.272	0.456	1.46	2.17	3.63	1.14	1.69	2.83



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able to the latter's use of steam for atomizing. In order to compensate for this handicap, the steam type must be able to obtain better combustion, so that the loss in the dry flue gases is less than that obtained with the mechanical type.

For example, a CO_2 content of 9.6 per cent gives about 3 per cent more loss in the dry flue gases than 13.0 per cent CO_2. Much effort and study have been put upon the furnace in the use and development of the steam type. The solution of the problem in the development of the mechanical natural draft type, which is at a disadvantage when compared to the forced draft type, is in furnace study rather than concentration on burner arrangements.

Marketer Incorporates: Will Build and Buy Stations

BARNESVILLE, O.—On March 1 The Kentucky Oil Co., which was organized on April 1, 1924 by B. H. Martin and H. C. Lucas, was incorporated for $50,000 with common stock at $25 per share par.

Present plans are to enlarge the business by acquiring bulk storage and several filling stations in a large city in southeastern Ohio. A filling station will be built immediately on the public square at Woodsfield, O., and the company will take over other advantageous locations.

Incorporators, besides Mr. Martin and Mr. Lucas are: L. L. Scott, A. R. Dilley and John T. Welch. Mr. Martin, who was previous to the organization of the company, manager at Cambridge, O. for the Pure Oil Co., Columbus, is president of the Kentucky company. Mr. Scott is vice president and purchasing agent. Mr. Lucas, who was formerly salesman at Cambridge, O. for the Pure Oil Co., is secretary, treasurer and general manager.

Offices of the company are in the Kennard Bldg. at Barnesville.

HOUSTON, March 13.—Stephen H. Brooks, president of the Beco Engineering Corp., Los Angeles, announced while in Houston this week, that the Southwestern Engineering Corp., with offices at Tulsa, will represent the Beco line of tank equipment sales in the Mid-Continent and that the last named organization plans to open a Dallas office shortly.

Billy Walker of Houston and Beaumont, who recently began representing Mr. Brooks in Gulf Coastal territory, will continue to handle the new Beco line in South Texas territory.

CLEVELAND, March 13.—The Oil Conservation Engineering Co. announces through H. H. Fleming, manager, that Neilan and Abbey, of Los Angeles, will handle Oceco equipment on the Pacific Coast, except fire extinguishers, which the Pacific Fire Extinguisher Co. will continue to handle as in the past.

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812 Huron Rd. Cleveland, Ohio

Submits Standard Forms for Income And Profit and Loss Accounts

By H. G. Humphreys

Skelly Oil Co., Tulsa

THE accompanying article gives a tentative classification for Income and Profit and Loss Accounts for oil company statements as a part of the work on oil accounting of the special American Petroleum Institute Committee on that subject, of which W. M. Mattison, tax expert, is chairman.

Four forms or classifications are given by Mr. Humphreys, a member of the committee. They should be studied in connection with the uniform general balance sheet, submitted by the committee, as tentatively drawn up, for consideration of the industry, which balance sheet was published in the March 10th issue of National Petroleum News.

Starting with its March 24th issue, National Petroleum News will publish the detailed definitions prepared by the committee for the various items in the general balance sheet.

THE Committee appointed to prepare a uniform classification of accounts for the petroleum industry has already made its report to the Directors of the Institute, in which it was stated it had been found impossible to complete, for presentation at the meeting in Los Angeles, even a tentative classification covering Income and Profit and Loss Accounts.

However, a tentative standard balance sheet has been prepared and discussed and arrangements made for inter-communication between the committee and accounting officers of oil companies the country over, as the result of which a finally revised general balance sheet should be made ready for presentation at the seventh annual meeting of the Institute.

Notwithstanding that the Income and Profit and Loss classification has not been submitted for discussion at the meeting, it has been deemed advisable to make some general remarks on the subject, which may possibly serve as a basis for constructive controversy during the coming year.

Through the generous contribution of the best accounting minds of the industry, many new ideas may be incorporated in such a classification which should prove of incalculable value to all.

The adoption by the oil industry, in general, of a standardized Income and Profit and Loss classification, with definitions of what constitutes expense as against capital, would fill a long felt want. It would make for means of communicating essential facts to the public, producers, distributors and consumers, as well as to the workers in production and distribution.

Out of such a classification might easily evolve the basis for a Joint Relations Bureau to establish high standards, reduce duplications of effort, deal with the disclosure of undesirable tactics, and serve as a clearing house for complaints.

If excessive and duplicate taxes are to be intelligently resisted, a formidable weapon for such a purpose may be wrought from statistics compiled from accurate accounts recorded in accordance with a uniform classification.

It is elected not to discuss the subject in an argumentative manner, but rather to submit for your consideration a series of interlocking summaries composing a broad classification, mindful of the probability that it will bear but slight resemblance to the classification that will be ultimately adopted.

It appears that the customary forms of presenting Income figures are:

1. Income and Surplus Account.
2. General Profit and Loss Account.
3. Departmental Profit and Loss Accounts.
4. Departmental Investment and return thereon.

Income and Surplus Account

(a) Gross Earnings—Sales of Oil and Products to the public.
(b) Purchases, Operating and Administrative Costs, Taxes, Insurance and Inventory Adjustments.
(c) Net Earnings.
(d) Miscellaneous Income.
(e) Gross Income.
(f) Income Charges.
(g) Available for Interest.
(h) Interest and Discount Charges.
(i) Net Income.
(j) Depletion, Depreciation and other Capital Extinguishments.
(k) Surplus Income for the period.
(l) Surplus Balance, beginning of Period.
(m) Together.
(n) Income applicable to minority interests and also to Stock of Subsidiaries acquired during the year.
(o) Remainder.
(p) Dividends declared.
(q) Surplus Balance, ending of period.

General Profit and Loss Account

(a) Operating Earnings, before depletion, depreciation and administrative expense.
1. Oil and Gas Properties.
2. Pipe Lines.
3. Crude Oil Storage.
4. Natural Gasoline Plants.
5. Refineries and Lubricating Plants.
6. Tank Cars.
7. Marine Department.
8. Retail Marketing.
9. Sundry Facilities.
10. Total Operating Earnings.
11. General and Administrative Expense.
12. Operating Income.

(b) Miscellaneous Income.
1. Discount on Purchases.
2. Rentals Earned.
3. Income on Securities.
(a) Taxable.
(b) Non-taxable.
4. Interest on Notes Receivable.
5. Interest Earned on Other Accounts.
6. Other Income.
(c) Gross Income.
(d) Income Charges.
1. Bad Debts Allowance.
2. Damage, Injuries and Claims.
3. Discount on Sales.
4. Bank Exchange and Draft Expense.
5. Other Income Charges.
(e) Interest and Discount Expense.
1. Interest Expense.
2. Discount Extinguished.
(f) Net Income.
(g) Depletion and Depreciation.
(h) Other Capital Extinguishments.
1. Canceled Leases.
2. Abandoned Wells.
3. Dry Holes.
4. Profit and Loss on disposal of Property Assets.
5. Amortization of Undeveloped Leases.
(i) Allowance for Federal Income Tax.
(j) Surplus income (or Deficit) for the Period.

Departmental Profit and Loss Account

(a) Oil and Gas Properties.
(b) Pipe Lines.
(c) Crude Oil Storage.
(d) Natural Gasoline Plants.
(e) Refineries and Lubricating Plants.
(f) Tank Cars.
(g) Marine Department.
(h) Retail Marketing.
(i) Sundry Facilities.
(j) General and Administrative.

3. (a) Oil and Gas Properties (Subdivided by Individual Leases.)
1. Barrels.
A. Sales of Crude Oil. B. Inventory Fluctuation. C. Total Production.
2. Value.
A. Sales of Crude Oil. B. Inventory Fluctuation. C. Total Production. D. Gas Sales. E. Miscellaneous Earnings. F. Total Earnings.
3. Expenses—Operating.
A. Labor. B. Teaming. C. Fuel. D. Water. E. Lubricants. F. Cleaning Out. G. Torpedoes. H. Unclassified Operating.

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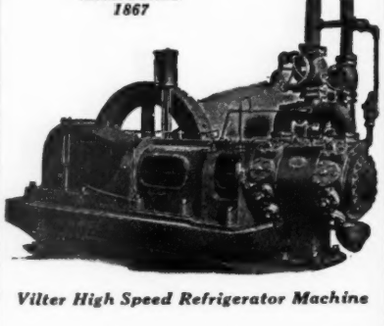

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4. Expenses—Maintenance.
A. Repairs—**(Material.)** B. Repairs—**(Supplies.)** C. Repairs—**(Labor.)** D. Unclassified Maintenance.
5. Taxes.
6. Insurance.
7. Unclassified Lease Expense.
8. Operating Earnings.
9. Depletion and Depreciation.
10. Proportion of Administrative Expense.
11. Net Profit for the Period.

Pay Out Statement (Subdivided by Individual Leases).
1. Expenditures from inception to close of current period covering lease cost, drilling expense, lease equipment and all expenses, omitting depletion and depreciation.
2. Earnings from Inception.
3. Excess of Expenditures over Earnings (or contra).

3. **(b) Operations of Pipe Lines** (Subdivided between Trunk and Gathering).
1. Revenue.
A. Gathering and Transportation. B. Storage and Demurrage. C. Miscellaneous.
2. Transportation.
A. Superintendance. B. Operating Gathering Lines. C. Operating Pumping Stations. D. Operating Oil Tanks. E. Operating Delivery Facilities. F. Operating Telephone and Telegraph. G. Oil Shortage. H. Unclassified Transportation.
3. Maintenance.
A. Superintendence. B. Pipe Lines. C. Changing Construction. D. Buildings. E. Pumping Stations. F. Oil Tanks. G. Delivery Facilities. H. Telephone and Telegraph. I. Highway Equipment. J. Other Property. K. Unclassified Maintenance.
4. Taxes.
5. Insurance.
6. Other Pipe Line Expense.
7. Operating Earnings.
8. Depreciation.
9. Proportion of Administrative Expense.
10. Net Profit for the Period.

* * *

Statistical Data

(To meet the peculiar conditions of the accounting company)

3. **(c) Crude Oil Storage—Profit and Loss Account.**
1. Oil Sales—Barrels and Amount.
2. Deduct—Cost of Sales.
3. Opening Inventory—Barrels and Amount at Cost.
4. Additions to Storage at Cost (price prevailing at date of storage).
5. Together.
6. Deduct Closing Inventory at Market.
7. Cost of Oil Sold.
8. Insurance.
9. Taxes.
10. Labor.
11. Maintenance.
12. Unclassified Expenses.
13. Earnings.
14. Depreciation of Tankage.
15. Profit or Loss on Storage Oil for the Period.

*Note: This account comes under the Production (or Crude Oil) Department and provides for the segregation of such Crude Oil as is specifically set aside as a speculative project. Sales are credited as made.

3. (d) Natural Gasoline Operations (Subdivided by Plants).

1. Gross Sales.. Gallons Amount
A. Natural Gasoline.
B. Blended Gasoline.
C. Total.
Divided as between Sales to Public and Sales to Refinery.
2. Outage and Allowance.
3. Net sales.
4. Deduct: Purchased Products in Sales
Naphtha Purchased.
Gasoline Purchased.
Naphtha Inventory Decrease.
5. Net Sales—Natural Gasoline.
6. Inventory Increase—Natural Gasoline.
7. Net Production—Natural Gasoline.
8. Cost.
A. Gas Purchased (M cubic feet).
B. Deduct: Residue Gas Sales.
C. Net Gas Cost.
D. Operating Expenses.
E. Transportation.
9. Operating Earnings.
10. Selling and General Expenses, proportion.
11. Depreciation.
12. Net Profit for the Period.

3. (e-a) 1. Refinery Operations—Light Oils (Subdivided by Refineries).
Gallons Amounts (by individual products)
1. Opening Inventory (at market).
2. Net Production * (see note).
3. Together (1 plus 2).
4. Closing Inventory (at market).
5. Deliveries to Lubricating and Retail Marketing Department (at market).
6. Together (4 plus 5).
7. Cost of Bulk Sales (3 minus 6).
8. Sales to Public.
9. Net Profit (8 minus 7).
10. Add back: Depreciation and Administrative Expense.
11. Operating Earnings.
12. Cost of Production.
A. Refinery Manufacturing Expenses (by departments). B. Casinghead Purchased from Company Plants. C. Casinghead Purchased from Outside. D. Freight on Casinghead Purchases. E. Casinghead Inventory Fluctuation. F. Crude Oil Purchases from Production Department. G. Crude Oil Purchases from Outside. H. Crude Oil Inventory Fluctuation. I. Proportion of Selling and Administrative. J. Depreciation. K. Total Cost, L. Statistical.
1. Crude Oil Run—per gallon.
2. Casinghead Run—per gallon.
3. Per Cent of Production to Throughout.
4. Refining and Storage Losses—per cent.
5. Sales—per gallon.
6. Per Gallon of Other Factors as may be desirable.
13. *Net Production—Apportionment of Cost over Products.

Products	Priced per Gallons.	Sales Value.	Cost of Value.	Net Production.
1				etc.
2				Apportioned
3				according
4				to sales
5				value.

3. (e-b) 2. Lubricating Plants (Subdivided by Plants).
Gallons Amount
1. Sales (Divided as between Sales to Public and Sales to Retail Marketing Department).
A. Lubricating Oils. B. Greases. C. Total Sales.

2. Cost of Sales.
A. Production Cost*. B. Inventory Fluctuations (at market). C. Freight. D. Total Cost of Sales.
3. Net Profit.
4. Add back: Depreciation, selling and administrative.
5. Operating—Earnings.

*Production Cost (accounted for by individual products).
a. Charging Stock from Refinery.
b. Charging Stock Purchased Outside.
c. Drums Purchased and Returned.
d. Cases and Cans Purchased.
e. Manufacturing and Filling Expense.
f. Processing Loss (gallons).
g. Inventory Fluctuations (at cost).
1. Charging Stocks.
2. Drums.
3. Cases and Cans.
h. Depreciation.
i. Proportion of Selling and Administrative.

3. (f) Tank Car Operations.
1. Revenue.
A. Rentals. B. Mileage. C. Repairs to Foreign Equipment. D. Miscellaneous. E. Total.
2. Expense.
A. Shop Expense. B. Repairs by Other Companies. C. Administrative Expenses. D. Taxes. E. Insurance.
3. Operating Earnings.
4. Depreciation.
5. Proportion of Administrative Expense.
6. Net Profit.

3. (g) Marine Department.
1. Revenue.
A. (Analyses).
2. Operating Expenses.
A. Fuel. B. Wages. C. Sundry Expenses. D. Port Charges.
1. Towing.
2. Pilotage.
3. Incidental.
4. Wharfage.
3. Maintenance.
A. Repairs and Replacements.
1. Engine.
2. Boiler.
3. Deck.
4. Hull.
4. Insurance.
5. Cabin and Crew Stores.
6. Deck Stores.
7. Engine Stores.
8. Food Supplies.
9. Operating Earnings.
10. Depreciation.
11. Proportion of Administrative Expense.
12. Net Profit.

Note: Revenues and expenses to be subdivided by vessels, by voyage numbers, with record of movements from port to port.

3. (h) Retail Marketing (Subdivided by Individual Stations).
Tank or Service Station Location Period
1. Sales.
A. Gasoline. B. Kerosene. C. Distillates. D. Lubricating Oil. E. Greases. F. Miscellaneous. G. Total.
2. Cost of Sales f.o.b. Plant.
3. Freight on Sales.
4. Direct Expenses.
A. Salaries and Commissions. B. Quantity Discount. C. Miscellaneous Freight. D. Cartage. E. Telephone and Telegraph. F. Fuel, Light and Water. G. Repairs—Buildings. H. Repairs—Equipment. I. Automobile Expense. J. Unclassified Direct Expenses. K. Rents. L. Insurance. M. Taxes and Licenses.
5. Branch Overhead.
6. General Station Overhead.
7. Operating Earnings.
8. Depreciation.
9. Proportion of Administrative Expense.
10. Net Profit.

Sales: Show gallons, per gallon and amount realized on each commodity.

Cost of Sales: Show cost by commodities computed f.o.b. plant.

Freight on Sales: Show cost, by commodities, of freight laid down at stations respectively.

General Control—Quantities and Amounts.
1. Opening Inventory.
2. Purchases, Refinery.
3. Purchases, Lubricating Plant.
4. Purchases, Natural Gasoline Plant.
5. Purchases, External.
6. Freight on Purchases.
7. Together.
8. Closing Inventory.
9. Stock Variations (Quantities).
10. Remainder.
11. Sales.
12. Gross Profit (11 minus 10).

3. (I) Sundry Facilities.
1. Drilling Tools.
1. Gross Earnings
2. Operating.
A. Superintendence. B. Labor. C. Teaming. D. Lubricants. E. Supplies. F. Automotive Expenses. G. Taxes. H. Insurance. I. Unclassified Operating.
3. Maintenance
A. Labor. B. Material. C. Sundries.
4. Operating Earnings.
5. Depreciation.
A. This depreciation is usually best ascertained by the inventory method.
6. Net Profit or Loss.

2. Automotive Equipment.
1. Earnings (by departments).
2. Repairs.
A. Tractor. B. Trucks and Trailers. C. Autos.
1. Tires..
2. Batteries.
3. Engine.
4. Sundries.
3. Taxes and Licenses.
4. Insurance.
5. Operating Earnings.
6. Depreciation.
7. Net Profit or Loss.

3. Other Internal Facilities.

Note: These operations may consist of company buildings, or other facilities of the accounting company, and provision as to operating revenue and expenses of such may be made to meet the peculiar circumstances in each case.

3. (J) General and Administrative Expense.

1. Departments.
A. Executive and General. B. Legal. C. Taxes and Claims. D. Insurance. E. Treasury. F. Accounting. G. Statistical and Economic. H. Engineering. I. Oil and Gas Production.
1. Land and Lease.
2. Superintendent's Office
3. Geological.
4. Scouting.
J. Pipe Lines. K. Natural Gasoline Department. L. Refinery and Lubricating. M. Tank Line—Traffic. N. Marine. O. Retail Marketing.

Note: Administrative Expenses applicable to Departments 3. (a) to 3. (i) consist of:
(a) General and Administrative, as above.
(b) Income Charges (2d).
(c) Interest and Discount Expense (2s).
(d) Less: Miscellaneous Income (2b).
(e) Total apportionable Expense.

As will be seen, this total is not entirely analyzed by operating departments; however, a portion of it is. The distribution should, therefore, be made as follows:

(f) Direct distribution (f) should be spread over departments in proportion to the respective departmental property costs less depreciation.

2. Features.

So far as applicable, the expenses of each department should be classified according to the following features, viz.:

A. Compensation of Officers. B. Other Executives' Salaries. C. Office and General Salaries. D. Traveling. E. Automotive Expense. F. Telegrams. G. Telephone. H. Radio. I. Stationery and Printing. J. Rents. K. Light, Heat and Power. L. Advertising. M. Newspapers and Periodicals. N. Membership Dues. O. Bond Premiums, Fidelity. P. Bond Premiums, Miscellaneous. Q. Insurance. R. Unclassified.

Departmental Investment and Income

It will be found by referring to the tentative Standard Balance Sheet that fixed (or capital) assets of the accounting company are required to be classified by departments.

The General Profit and Loss Account (Item 2 herein) shows that the final figure for the accounting period would be Surplus Income, which is subject to deduction in respect of minority interests and stock of subsidiaries acquired during the year, as crude in Item 1.

It now becomes desirable to ascertain Surplus Income by departments for the accounting period. In order to do this, the vertical classification of the statement should consist of (1) a list of departments with horizontal classification showing (2) property costs (3) depreciation reserves and (4) net depreciation value of properties. See form below.

The horizontal classification should continue:

(a) Departmental Profit or Loss.

This will be ascertained from the respective departmental Profit and Loss Accounts; as for example, 3. (a) Oil and Gas Properties shows net profit for the period after deduction of all expenses including depletion and depreciation and also a proportion of Administrative Expense.

(b) Other Capital Extinguishments may be distributed over their respective departments without difficulty. (See 2h).

(c) Would represent (a minus b) Net Income.

(d) The Federal Income Tax for the year having been ascertained or allowance made therefore, such amount may now be distributed in proportion to figures in column (c).

(e) Thus leaving in column (c) (c minus d) Surplus Income for the period divided by departments. This figure, obviously, includes that portion of Surplus Income which inures to Minority Interest as well as the portion which was applied in reduction of cost of investment made in subsidiaries during the current period.

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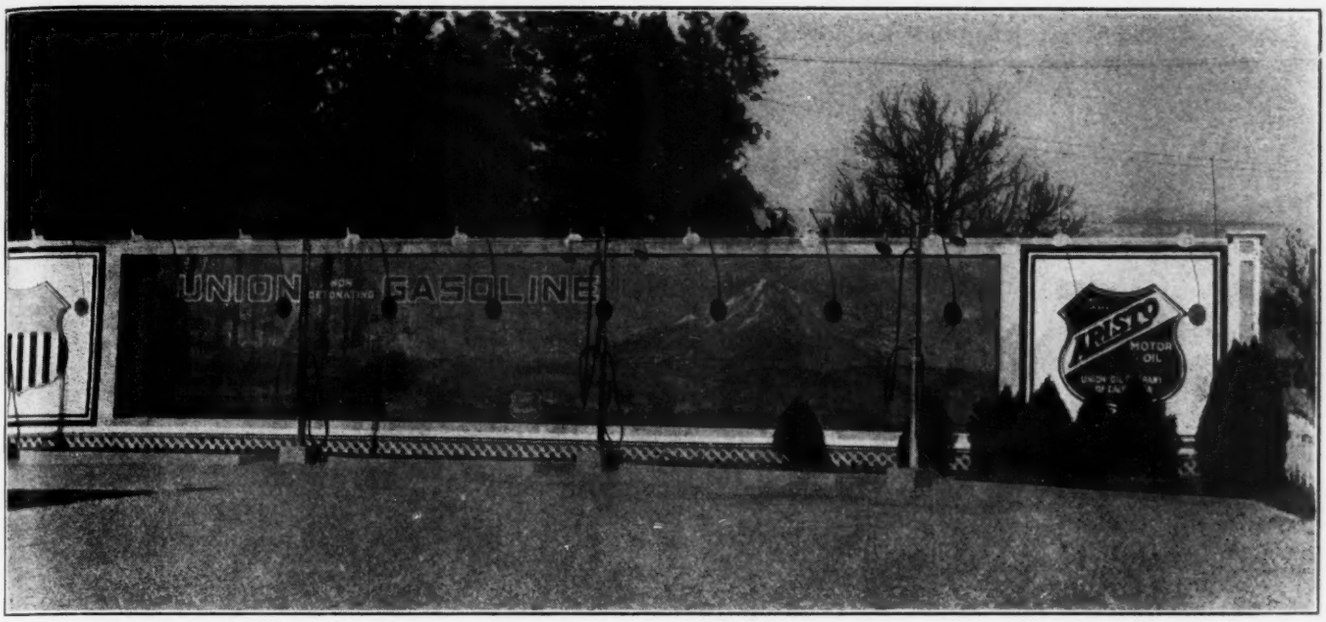


An effective and most artistic use of billboard space at a Union Oil Co. station in Los Angeles. The board is at the back of the lot. The panorama shows Mount Shasta. It is repainted about every six months. Judicious landscaping with shrubs and an immaculate graveled station yard in front lend to the effect of the billboard.

"Super" Stations and Oil Companies Compete for Gasoline Business

By V. B. Guthrie

N. P. N. Managing Editor

Part 2

In a nutshell, high spots in the issue between the oil company service stations and the privately-owned, complete unit stations, for the gasoline business, as brought out in Los Angeles, are:

Independent or privately-owned station has greater variety of service to catch and hold trade.

These stations are run in most cases by the owner of the business, who is putting more time and thought into his work than the oil company agent. This applies to the lessees of the various servicing units also.

The privately-owned station, where actually operated by the owner, is run at less cost than is possible by the oil company, through agents, for a similar station.

Individual stations are stocked and operated to please the trade in that particular territory only, while oil company stations must standardize on services and commodities for all stations.

Oil company has better control of stations sites, owning or holding on long term leases in majority of cases, as against short term leases and larger plots of ground for independent stations.

Oil company is able to advertise consistently in newspapers, billboards and so on, where this is not profitable to man with one station.

Oil company has advertising and sales argument in talking protection against substitution, short measure, and incorrect lubrication through buying its own products at its own stations.

WITH the exception of one Los Angeles company as far as is known at least, the oil companies are sticking to servicing the car for its gasoline and lubrication needs only. They all sell the Independent dealer trade, the privately owned stations and try to pick out the good reliable dealers, but they say definitely they do not plan to expand their stations into the de luxe type where the sky is the limit as to what may be offered.

For one thing the oil company heads predict that the rapidly advancing real estate values in Los Angeles will limit the increase in the super type of stations, if not force some out when their present leases expire. A ten-year lease on a service station in Los Angeles is a long one. Most are reported to average not more than five years. A site from 75 to 100 feet wide and not much less than 175 to 200 feet in length or depth is necessary for anything like a complete station. The majority of these dealers were men of small capital when they started and rented their locations when real estate values were much lower than at present. The oil companies in numerous cases own their locations outright and hesitate to go into short term leases. Conditions in the east, where station sites of this size would likely be harder to find and more costly to acquire than many of the Los Angeles stations were, may serve to handicap the independent dealer type of station from becoming the factor in eastern cities, it has in southern California.

Can Hold the Business

"We believe the oil company service stations, keeping away from all sidelines, can hold their present business and even gain back some they have lost to the Independent dealers," said the head of one oil company. "Oil company stations must be provided with the latest and most efficient equipment for taking care of lubrication and greasing needs of cars. Even more important, the oil companies must advertise more consistently than they have in the past to impress upon the motorist the saving he makes in the cost of running his car and adding to its life by giving it proper lubrication, and they must tie this message up with the fact that the motorist is assured the best lubrication attention possible at their stations, with the danger of substitution entirely eliminated.

"Not that the Independent dealers as a class countenance such practices, but any business that allows a man to start up with such limited capital is bound to

Outside Rest Rooms Featured

Rest rooms, particularly for women, are built outside and away from the station in many instances, especially at country stations. Being attractively designed, they fit into the general harmonious effect of the station. They are kept as neat inside as their outward appearance would indicate.

have its proportion of shortsighted and dishonest dealers.

"The criticism of the public is directed often against the oil company products, rather than the dealer who made the sale. It is quite possible the oil companies will recognize the advantage they have over the Independent dealers in their ability to advertise effectively and constantly, for the purpose of getting business into their stations, and that they will do it more effectively in the future."

Plays Dealers' Game

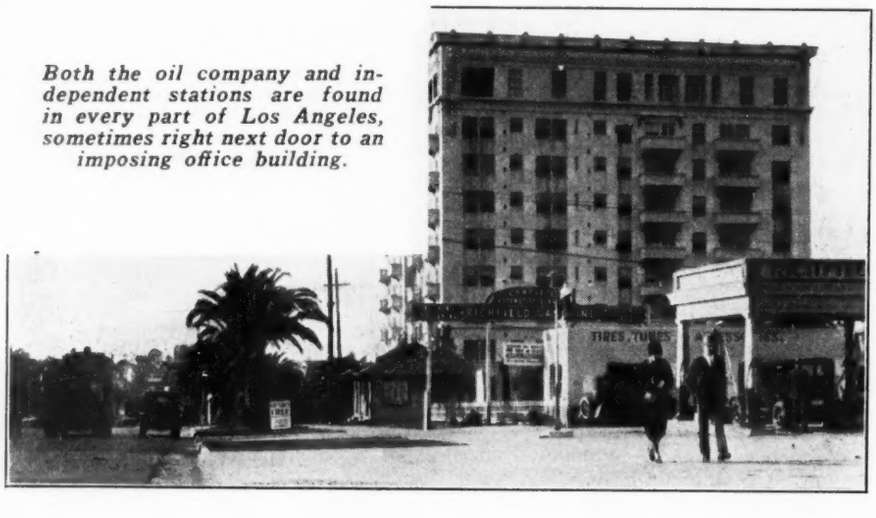
The Richfield Oil Co. has advanced its position among Los Angeles oil companies from well down the list to third, by consistently fostering the dealers' business. It advertises in the newspapers urging the public to give dealers their patronage because of the service they offer. The Richfield has only a small number of stations of its own, by far the largest of its gallonage is through dealers' pumps. The stations it does operate all give such service as handling and repairing tires, sale of limited accessories, battery and ignition service, washing and polishing in addition to oiling and greasing.

The oil company does not undertake to handle anything but the sales of gasoline and oils at these stations, and washing and polishing. It puts up the buildings for the complete unit station and then rents the other services to men experienced in that work. J. B. Graves, manager of sales for the company, says it would be hard for the oil company to undertake the operation of all branches of the super service station, because the nature of their operation varies according to the neighborhood, and it would be impossible for the oil company to standardize upon merchandise to be carried and services given at all stations regardless of locality.

"The station must depend for a great part of its trade on regular customers in its territory," said Mr. Graves. "To secure this class of trade the station operator must carry what appeals to car owners in his community. What will sell well in one part of the city will not pay in another. The station cannot depend upon tourist trade to anywhere near pay its expenses even upon tourist routes.

"The Independent dealer, if he is the right kind of man, studies his station to see what moves the best. He drops slow moving stock. He is on the job himself early and late. He is recognized as the owner and his personality has a great deal to do with building up business there. The minute he turns the station over to someone else it begins to suffer. That is where the oil company is at a disadvantage with its agents."

While the Richfield is the only oil company that openly caters to the dealer trade, the other oil companies have all felt the competition of the Independent stations and adopted some means of trying to offset it. The Standard Oil Co., for example, has tried to throw the servicing, outside what it does at its own stations, to reliable Independent stations in that same locality, trying to make sure that its own gasoline and oil are carried at that station.



Both the oil company and independent stations are found in every part of Los Angeles, sometimes right next door to an imposing office building.

Carry Several Brands

All oil companies sell the Independent dealer trade. It is nothing at all to see five different pumps and signs in front of a station each handling a different brand of gasoline. The dealers have to buy their pumps here. They are not given away as they are in the east. They are sold by most of the oil companies on reasonable terms with about a year to

pay, but the dealer pays the full price. In spite of this investment some of the dealers believe they should carry all the principal grades of gasoline, just as the corner drug store carries six or eight or more kinds of toothpaste, when at a pinch, one or two would certainly suffice.

So, even in a country of unusual sights, it does attract the attention of the visitor from the east to drive up to a station and see a row of neat signs on standards in front, the Union's shield, Ventura bell, Shell seashell, the Standard's red, white and blue circle and so on. All told the station may do more than 500 gallons of gasoline a day, even split among five or six different brands of gasoline. The price is all the same too. Premium price gasolines are pretty much unknown out here.

Making a census of the gasoline stations in Los Angeles is a simple matter compared with most towns, for it has a license law under which every retailer of gasoline through a pump and underground storage tank is taxed a percentage of his previous year's business, gen-

As Well Arranged as on Shipboard

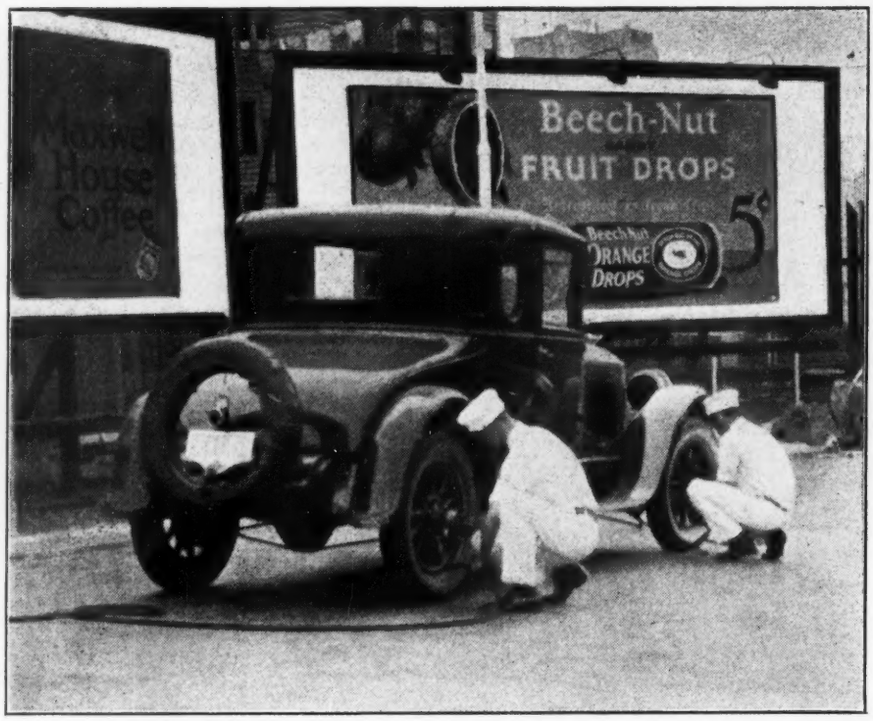
Upper shows a standard type of Standard Oil Co. of California service station with drives on two sides. Just below, in the center, is the newer standard type of station building. Small in size, it was designed to give the maximum in accommodations in the least space. Below that at the left is the housing for the air compressor, up under the roof, with shelf space for cans around it, and at the right a first-aid outfit, kept in a convenient location. Each station is known by number, which is kept posted, as well as the name of the attendant on duty, and also a sign urging patrons not to tip attendants.

The Barbecue Stand

TREND of service station development in Los Angeles seems now to be towards limiting what is offered to automotive servicing, in itself a broad field.

While a great many of the de-luxe, or super service stations were started by men of no experience in either the oil business or the garage business they seem now to be getting more into the hands of men with such experience.

Many of them seem to be passing up the lunch and soft drink counter and the barbecue stand as foreign to their field, as calling for different types of locations than oil stations, and for men of different experience and training than can handle oil stations successfully.



Service is developed to the extreme at California oil company stations. Before the woman driving this coupe had said a word, these two Standard Oil Co. attendants were at work testing her tires for air.

erally amounting to $4 a quarter for a station doing much over 500 gallons a day. A man has to take out a permit to install the tank, and then assessing and collecting the tax is an easy matter.

Average Gallonage

The last published report on the number of stations in Los Angeles, made by the Independent Petroleum Marketers' Association as of Oct. 1, 1925, showed 1290 within the incorporated limits of Los Angeles, 808 owned by Independent dealers, that is dealers without known connection to a refinery source of supply. Oil company owned and operated stations totaled 482.

Motor vehicles registrations in Los Angeles up to Jan. 1, 1925 were 363,960, according to the Southern California Automobile Club, from which it should be easy to arrive at something like the possible average business per station, except hardly two people agree on what constitutes the corporate limits of Los Angeles, so the stations may take in one area and the registration figures another.

Average gasoline consumption per car runs higher in California than any other state except Florida, figures compiled by National Petroleum News from tax returns show, which includes gasoline consumed by tourists' cars. The last available figure is 540 gallons per car per year, for both trucks and passenger cars. On this basis cars which are registered and operating regularly in Los Angeles would make an annual market for gasoline of over 196,000,000 gallons, around 420 gallons per day per station. These cars would buy part of their gasoline outside the city but this should be offset by gasoline bought in the city by the 245,000 cars the auto club says visited the city in 1925, staying an average of 72 days. The auto club says these visiting cars carried an average of four persons, each of whom spent an average of $4.12 per day or a total of $292,000,000; but just how much of that was for gasoline the auto club neglected to ask. Most of these cars were from other parts of California. It is estimated that, in 1925, 75,000 cars came into the state from other states.

Juggling with figures is hazardous work but if the above holds true, the general estimate that Los Angeles gasoline stations cannot average more than 250 gallons a day would be low. On an average gallonage of around 400, with a four-cent margin to the pump dealer the income would about meet an average cost per day of running the oil company type of service station, which one oil company head places at $17. This does not include oil and grease sales.

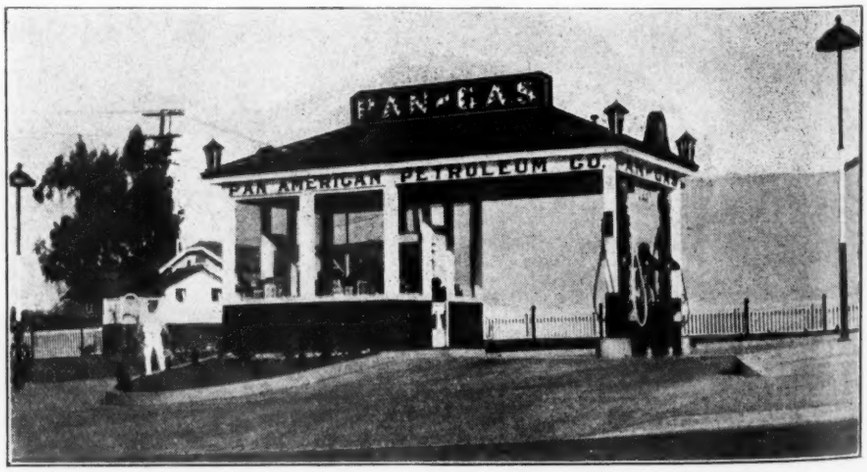
The figures you will get as to the investment necessary to start up in the super service station business—selling anything you may please from gasoline to doughnuts—varies inversely as the desire of the person you are talking to, to see you started in the business.

If you go out to the Gas Station Exchange, out on West Pico street, which builds, sells, exchanges and finances gasoline you learn that a neat place of business can be launched on an investment of $3500 with a five-year lease, and that, if you tend to your trade, you can get your investment back inside two years and sell the business to someone else for the remainder of the lease. Some others place the minimum necessary investment at $5000. There is quite a turnover in gasoline stations. Sometimes the Los Angeles Times carries half a column for sale in its classified advertising section.

One company which has made an undoubted success of running the de-luxe stations, and still sticks pretty closely to automotive servicing and doesn't branch out into the eating or personal adornment branches, says $20,000 is the least that should be considered. This company says rent might run $500 a month, half of which could probably be gotten back in the subleases. Suitable buildings would cost $15,000 and the station should sell 700 gallons of gasoline a day to have enough trade for the other shops, to make much of a profit.

All stations handle tires, many of them carrying good-sized stocks. In selecting accessories the choice runs to materials having to do with keeping a car in good appearance, such as soaps, polishes, wiping cloths, dust cloths, and in addition small parts that are frequently lost from a car, such as rim parts and lugs, assorted bolts and nuts.

Here is a fairly complete inventory of accessories handled by the Triangle Super Service Stations which runs four or five stations in Los Angeles, windshield wipers, bolts, nuts, lug rim parts, files, sparkplugs, fan belts, gas tank caps, chains, pedal pads, electric bulbs, light wrenches, screwdrivers, tire repair kits, cleaning soaps and polishes of several



Standard type of service station building and layout used by the Pan American Petroleum Co. The lighting effect is particularly good, red and green bulbs being usd to carry out the company's color scheme. Lighting standards around the station yard are attractive.

brands, chamois, wiping and polishing cloths and windshield mirrors.

R. F. Meyers proprietor of the Triangle stations, believes it is profitable to carry radios and radio parts and accessories at his stations. "Everyone is interested in them. When a party is hanging around a station waiting for some service to their car, we find they spend the time looking over the radio stock. We have made several sales to people who just came in to look around and kill time," he said. "The greatest trouble is that so many places sell them on long credit terms, which can't be done at a place where they are merely a sideline."

Greasing and Oiling Charges

Following are the oiling and washing rates charged by one company which makes a feature of its super service stations. There are three schedules for washing and polishing cars, depending on the size:

No. 1—Washing, open $2, enclosed $2.50. Polishing $2 for open or enclosed.

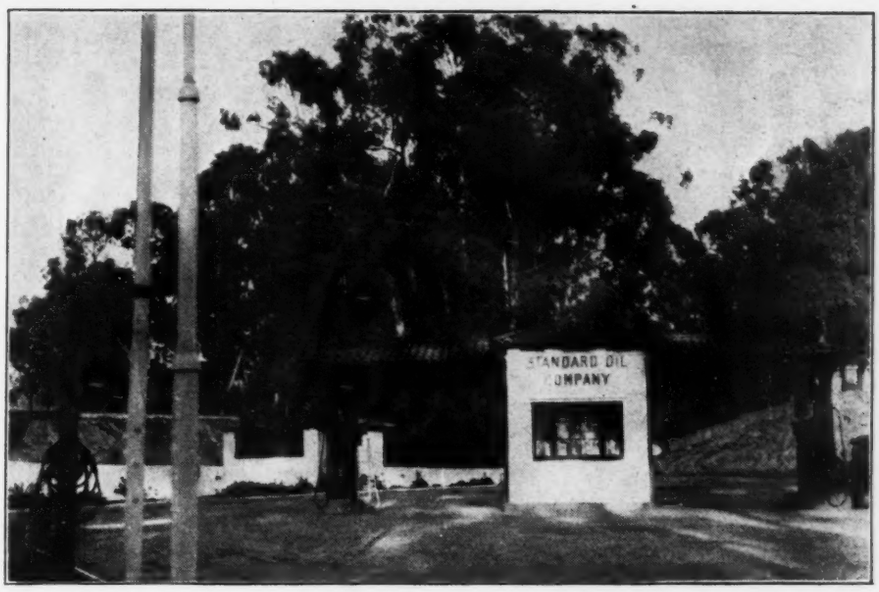
No. 2—Washing, open $2.50, enclosed $3. Polishing $2 open, $2.50 enclosed.

No. 3—Washing, open and enclosed $3. Polishing, open and enclosed, $3.

Cleaning chassis with compressed air and kerosene or distillate $1.50; cleaning motor and chassis $3; cleaning motor $1.50; cleaning motor and transmission $2; cleaning motor, chassis and transmission $3.50.

Dressing top .75 to $1.50; clutch lubrication .50; complete greasing $3; tightening body bolts $3.50; filling grease cups $1.50; spring leaf lubrication $1; packing universal 50 cents; transmission and differential grease 25 cents per pound.

This same company offers a complete monthly service costing from $12.50 to $14 depending upon the size of the car which includes; 1 wash, 1 wash and polish, 1 complete greasing, 1 complete tightening, 1 crankcase service including 1½ gallons of oil and 1 crankcase flushing.



An original type of Standard station on the highway between Los Angeles and San Francisco, evidently designed to fit into the natural surroundings. The outside rest room can be seen in the rear at the left.

Ready to ship — No delay — Immediate delivery

Royer Model G Visible Gasoline Pump

$115.00

Royer Model G enclosed

Tremendous production, skilled workmen, best of materials and no long waiting for your pump to arrive. In some cases, 24-hour delivery is made.

Our factory is running full tilt day in and day out, producing the finest, strongest and most efficient pump ever offered for $115.00. We absolutely guarantee it to meet with your satisfaction.

Read over these specifications. Send in 25% cash with order, balance sight draft bill of lading.

Guarantee of satisfaction. Try it out for thirty days. If you don't like it, send it back and full purchase price will be refunded!

Royer Air Compressors take up little space, are steady workers, need little attention and are sold at a very attractive price. Write us for complete information.

Operation: hand or straight air. Ten gallon size. Height nine feet. Specifications: 1½" geared Blackmer pump. Ten foot length best metal lined gasoline hose with self-closing shutoff valve at end of hose; aluminum tubing used in glass bowl; sixteen gauge metal housing. Height from base to glass cylinder 69 inches. Pump firmly supported by three standards.

Write, wire or phone today!

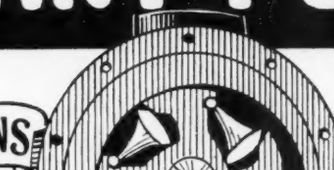
Royer Model G Casing removed

ROYER PUMP & EQUIPMENT COMPANY

1708 South Third Street **St. Louis, Missouri**

BLACKMER ROTARY PUMPS

MORE GALLONS PER DOLLAR



Dominates the field in transferring oil and gasoline.

Capacities from 3 G. P. M. to 500 G. P. M. hand or power operated.

District Offices

284 Peachtree St., Atlanta, Ga.

709 Title Bldg., Baltimore, Md.

428 Old South Bldg., Boston, Mass.

52 W. Chippewa St., Buffalo, N. Y.

608 So. Dearborn St., Chicago, Ill.

1347 Book Bldg., Detroit, Mich.

408 Austin St., Houston, Texas.

4025 Boulevard Place, Indianapolis, Ind.

1505 Commerce Bldg., Kansas City, Mo.

Stearns-Rogers Mfg. Co., Denver, Colo.

1320 Starks Bldg., Louisville, Ky.

429 Broadway, Milwaukee, Wis.

549 Plymouth Bldg., Minneapolis, Minn.

306 Wells Fargo Bldg., New Orleans, La.

71 Murray St., New York, N. Y.

904 Real Estate Trust Bldg., Philadelphia, Pa.

711 Ferguson Bldg., Pittsburgh, Pa.

1516 Pine St., St. Louis, Mo.

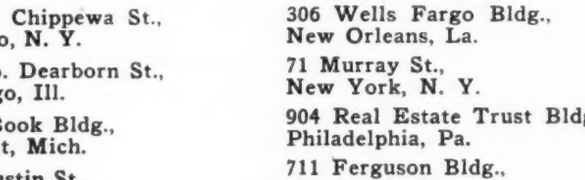
693 Mission St., San Francisco, Calif.

Canadian Branch: London Concrete Machinery Co. London, Ont.

BLACKMER PUMP COMPANY
GRAND RAPIDS (FORMERLY PETOSKEY) MICH.

A. D. MILLER SONS CO. *Pittsburgh, Pa.*

Producers and Refiners of High Grade Pennsylvania Oils



PENNSYLVANIA S. R. CYLINDER STOCKS, Fire tests 600°, 635°, 650° High Viscosity

PENNSYLVANIA MOTOR OILS, Blended to suit Jobbers' specifications. In tank cars, steel drums, wooden barrels.

VISCOUS PALE NEUTRAL OILS, KEYSTONE PAINTERS' SPIRITS. All grades WATER WHITE OILS, MINERAL COLZA, GASOLINES, etc.

Cable Codes: Western Union (Universal) ABC (4th and 5th Edition, Private Codes) Established 1862

Fiske Bros. Complete New Toledo Plant

NEW YORK, March 12.—Construction of a grease and compounding plant that increases production capacity 400 per cent. over its old plant at Toledo, O., has just been completed at that point by Fiske Bros. Refining Co., manufacturer of lubricants, with headquarters at New York.

The company started as oil merchants in 1870 as Weston & Fiske, at Burling Slip, New York. Later the partners purchased a refinery at Clarendon, Pa. and reorganized as Fiske Bros., with offices and warehouses on Water St., New York.

In 1880 it began to manufacture mineral lubricating greases. Fiske Bros. Grease Co. was formed to handle that business. The above companies combined and incorporated in 1891 as the Fiske Bros. Refining Co.

The development of export trade and the growth of the lubricating grease business necessitated the erection of a plant at Newark, N. J., which has recently been enlarged to handle increasing business during the past five years.

The old Toledo plant was built in 1916 to take care of demand in the middle west. The new and enlarged plant replacing the old one is of steel, brick and concrete construction, modern in every respect and is completely equipped for the manufacture of various kinds of lubricants.

A number of special lubricating products for household and industrial use have been developed by the company during its 55 years in the industry. All products are marketed under its own trade name, Fiske.

Exclusive sales agents abroad are maintained in Europe, South America, Australia and the West Indies. John R. Lewis, European representative of the company, has just returned to Europe, while his son, Horton Lewis, Australian representative, is at present visiting the New York offices. He will return to Australia in a few weeks.

The Fiske brothers retired from active business in 1916 and sold their interests to the members of the company who were then active. Present officers are: Frederick J. Snyder, president; William M. Teetsel, vice president and treasurer; Carlos Rodriguez, vice president; L. A. Ryan, assistant to the president in charge of foreign business; F. W. Edwards, secretary; Thomas W. Armstrong, general sales manager for domestic trade; J. R. McClushion, assistant eastern sales manager. Most of the officers have been with the company for many years. Miss K. M. Wambach, cashier, has completed 39 years of service.

SAN FRANCISCO.—The Tiger Oil Co. is representing the Pan-American Petroleum Co. of Los Angeles in the coast territory of northern California, and is distributing the latter's Pan Am lubricating oils and greases and Clover industrial lubes and greases, according to G. R. Rice, president of the Tiger company.

Oil Industry of Russia is Steadily Making Gains in all Phases

By Basil B. Zavoico
Sinclair Oil & Gas Co., Enid, Okla.

This article, being the greater part of a paper presented before the petroleum division, A. I. M. E., at New York, Feb. 17, gives the present status of the nationalized Russian oil industry. Because of its length portions dealing with fields other than Baku, the major producing district, are not published here. Russia is becoming a large factor in supplying the petroleum requirements of Europe; this is comprehensively shown by Mr. Zavoico.—Editor.

THE end of 1924-1925 operating year brought to a close the first five-year period of the nationalized Russian petroleum industry. The recovery of the industry, rather slow during the first two years, has made striking progress since 1923. The current production is still well below the potential, due to the lack of adequate transportation facilities. The methods of drilling, producing and refining were nationalized, and the fields were equipped with the latest types of machinery at a great expense.

Of major economic importance will be the increase in the gravity of all Russian crudes, equal to about 5°Bé, due to modern producing and storage equipment; thus giving a much larger amount of gasoline, the most valuable exportable product.

The major improvements in the transport system include the building of two pipe lines of over 1,200 miles combined length, and also the ordering of large sea-going tankers. In the export marketing end the long-term contract took the place of casual orders, thus greatly stabilizing the economical position of the industry. At the same time the refineries of Baku are being put in a position to supply any petroleum products according to desired specifications.

The industry is still operating at a loss, but large orders abroad for new equipment are solely responsible for the deficit. The industry will be on a paying basis as soon as the present building program is completed.

The oil reserves of Russia are still unestimable. The present fields of Baku and Grozny represent but a small fraction of future productive areas, and even in these two established fields the discovery of deeper oil-bearing sands is considered very probable.

With modern production methods, with the increased efficiency of labor and with the consequent decrease in the cost of production, the Russian oil industry will be a factor of major importance in the world's oil trade in the course of a few years.

Production has registered but small increases since last year. Baku district showed an increase of 2,600,000 barrels; Grozny, 3,340,000 barrels and Emba, 525,000 barrels.

The estimates for 1925-26, 1926-27 and 1929-30 were made by the representatives of the petroleum districts, and appear to be fairly conservative. The increases of the first two operating years are consistent with the expected increase in efficiency of existing transportation units. It is the opinion of the writer that 1929-30 production will be considerably in excess of 100,000,000 barrels, since the growth of the petroleum markets throughout the world and the new pipe lines will allow such expansion.

Production In Baku District

The Baku district continued to lead the Grozny fields, although its production is increasing slower than the output of Grozny. In 1916 Baku produced 76.6 per cent of the total Russian crude, while in 1924-25 it produced only 66.2 per cent, a loss of about ten points.

The replacement of bailers by pumping units is marked, and is of interest to the American industry, since practically all pumping equipment was ordered in this country. The future program calls for further replacements, and within two or three years the bailing will be abandoned whenever possible. In May, 1924, there were only 38 wells equipped with modern pumps, and their production amounted to about 3 per cent of the total. In October, 1925, the number of pumping wells increased to 625, and their production amounted to nearly 24 per cent of the total. The total number of pumping units in October was 852, but 227 units were under repairs or shut down because of considerable delay in the manufacture of rods. The Azneft management plans to install during the 1925-26 operating year over 800 pumping jacks, thus increasing the production of oil by this method to over 50 per cent of the total by the end of the year. All pumping units, individual and powers, are operated by electricity. In Binagadi field an experiment is being made with wind power for pumping power connected to seven wells.

Another improvement of major importance is the hermetic exploitation of all wells. Before nationalization even the gushers were flowing wide open, thus increasing the losses to a large percentage of the actual production, and besides all the lighter fractions were lost completely. Only in 1922 all flowing wells were capped, and only in the beginning of the past year casing heads were being installed on all other producing wells. Until nationalization of the fields, hermetic tanks for crude were practically non-existent, and only lately the work has been started on making all field tanks gas-tight. The plans of Azneft are to finish the work on tanks by 1927, and to equip all producing wells with casing heads by 1928. The above work will tend to increase the gravity of the Baku oil by 3 to 5°Bé, and will thus result in a considerable increase in the production of gasoline.

The total number of producing wells increased from 1939 in May, 1924, to 2174 in July, 1925. This increase is partly due to new drilling, and partly to bringing into producton wells abandoned during the days of the Civil War. The Azneft management is contemplating to start work on over one thousand wells, in the Old Area, abandoned long ago; the geological department estimates these wells good for 10 barrels sustained daily production, and the production engineers consider that these wells will give good profits if pumped from powers, each connected to about 20 wells.

In 1924-25 the relative importance of individual fields, and their future prospects were as follows:—

1. Sourakhany, 21 per cent of total production—in this field deeper pay was discovered during 1923-24 in the Fifth horizon at a depth of about 2700 feet, with the initial production averaging 1000 barrels, and a number of wells flowing up to 15,000 barrels. During the past year a secondary anticline was discovered on the western flank of the field, thus increasing the area. The field covers about 1500 acres, and production to date per acre reaches 60,000 barrels.

2. Bibi Eibat, 19.5 per cent of total production—the development period for the Bibi Eibat may be considered ended. Out of 40 wells drilling on the area of

Production in All Russian Fields
In Millions of Barrels

	1916	1922-23	1923-24	1924-25	1925-26	1926-27	1929-30
Baku	53.81	25.30	31.30	33.90	40.00	49.00	59.00
Grozny	12.33	10.90	11.80	15.14	17.30	18.50	24.00
Emba	1.82	0.97	0.90	1.43	1.90	no estimates	
Kouban	0.40	negligible	0.25	0.40	0.60	no estimates	
Central Asia	0.44	negligible	0.15	0.25	0.35	no estimates	
Total	72.80	37.17	44.40	51.12	60.15	71.50	88.00

the reclaimed Bay only 10 did not show any trace of the extinct mud volcano, and only 7 wells proved to be located in the immediate zone of the cone, thus condemning about 16 acres. On the rest of the Bay the influence of the volcano appears to be negligible. Present production is obtained chiefly from the central part of the structure, from its SW and NE flanks. The best wells are being brought in on the SW flank from the Fifth horizon. The work of reclaiming is to continue during the current year. In the SE end of the field an extension well is being drilled at 3700 ft. It passed the Fourth horizon without promising shows, and is being deepened to the Fifth horizon. At the present time Bibi Eibat is leading Sourakhany, producing about 28 per cent of the total. This field covers about 1200 acres. Production per acre reached 750,000 barrels on an area of about 400 acres.

3. Ramani, 20.5 per cent of total production—the Fifth horizon came up to expectations. Drilling of additional wells on the Ramani Lake is likely to increase the production.

4. Sabunchi, 19.4 per cent of total production—the production of a formerly undeveloped part of the field (Solbaz) is in excess of the expected figures; however, the Fifth horizon is beginning to show water, and consequently the production will tend to decrease in the future.

5. Balakhany, 14.2 per cent of total production—it appears from the latest wells finished in the deeper sands of Kirmakinski formations that the saturation of these sands is increasing with the depth. A number of wells will test these horizons during the coming year, and the Old Area is likely to stage a comeback. If the sands of Kirmakinsky formations prove to be productive, the life of the whole peninsula will be extended considerably. The Balakhany-Sabunchy-Ramany area covers approximately 3500 acres, and production per acre reached 450,000 barrels.

6. Binagady, 5.2 per cent of total production—the field is still in the development stage. The extension of the field to the west was confirmed.

Power

The Azneft continued its policy of abandoning steam engines, and replacing them by electric motors and by internal combustion engines.

Electric motors are substituting steam engines as field equipment, when connection by transmission lines is considered economical. The gas and gasoline engines substituted steam in wildcatting areas, while big Diesels are finding ever increasing popularity in central power station, pumping stations and on large tankers.

The substitution of steam power in the Baku region is a real problem, since water suitable for boilers is absent; treatments of various kinds are locally successful, but feeding treated water to a large area of the fields is impossible.

The main central station in White Town, serving all fields and refineries, succeeded in reducing the fuel oil consumption from 0.715 kg. per kw.-hr. during last year, to 0.656 kg. during the current year. The total capacity of four central stations in the Baku district now reaches 800,000 kw.-hr. per 24 hours.

Azneft is entirely re-equipping the boilers of central stations, and is installing a number of new Babcock and Wilcox boilers. Of the new equipment recently ordered, a turbine generator with a capacity of 17,500 kw. deserves attention; this order was placed in France.

In the early days of nationalization sometimes as much as 20 per cent of the gross production was consumed locally in the fields and by refineries. Azneft suceeded in reducing this consumption to about 8.5 per cent of gross production. Further improvements are contemplated. The decrease is due to increased use of electromotors, to the increased efficiency of the central stations and to the use of natural gas as fuel under boilers, for homes and for various other purposes.

The natural gasoline industry is still in its infancy. Only experimental work is being done so far. Azneft ordered recently three portable plants for preliminary work. Because of the unusual concentration and long life of the producing areas, the Baku fields are well suited for permanent installations. However, large scale work must be necessarily delayed until hermetic exploitation is adopted throughout.

Drilling

The total footage drilled during 1924-25 reached 413,700 feet, thus almost equalling pre-war figures. The greatest amount was drilled in the last six months, and the figures of this period are in excess of the pre-war.

The rotary drilling was responsible for the increased footage, while the cable tool rigs were steadily gaining ground. Before nationalization neither of these methods were represented in the Baku fields. The Russian percussion rod rigs gave up their lead to the rotaries in May, 1925; and their footage is rapidly decreasing since then.

The number of active rotary rigs increased from 55 last year to 103 in October, 1925, while Russian rigs decreased from 147 to 90. During the same period the cable tool rigs increased from 5 to 47. In addition about 50 Russian rigs are at work in old areas plugging abandoned holes, in a campaign against water encroachments.

The Azneft was very successful in the rate of rotary drilling which increased from 5.6 feet per day to 12.2 feet on an average: the Russian rigs averaged about 5 feet per day against 3.3 feet last year. No data were available last year for cable tool drilling, this year the average was 5.1 foot per day. The small footage in the last case is due to the use of the cable tools in finishing rotary wells at depths from 2500 to 3000 feet and also to the experiments of adapting Russian rigs and their equipment to the cable system. During the current year the increase in daily footage will undoubtedly be made, both in rotary and in cable tool drilling.

The drilling plans of the Azneft for the next five years and the cost of drilling per foot are presented in the accompanying table:

Future Drilling in Baku Fields

Expected Footage 1925 to 1930

	1925-26	1926-27	1927-28	1928-29	1929-30
Total footage	500,000 ft.	700,000 ft.	770,000 ft.	850,000 ft.	900,000 ft.
	Per Cent				
By rotaries	55.5				
By cable tools	25.6				
By Russian rigs	18.9				

Reconnaissance Drilling 1925 to 1930

		Feet
To be drilled in new areas	21 wells with estimated footage	51,000
To be drilled in old areas to deeper horizons	20 wells with estimated footage	45,000
To be drilled near old fields	14 wells with estimated footage	29,000
To be drilled on boundaries of old fields	44 wells with estimated footage	112,000

Cost of Drilling per Foot

	1923-24	1924-25	1925-26 (Estimated)
Rotary	$46.80	$28.00	$24.60
Russian rod	$52.50	$44.00	$37.00
Cable tool			$27.50

Refining

The capacity of Baku refineries has considerably increased since last year. This increase was due to putting in commission several old units and not to new building. The improvements in old refineries are especially noticeable in the extraction of lighter fractions, which previously were lost. In this connection it is well to note that the change in orientation of petroleum refining in United States was gradual, while in Russia the refineries were faced with an accomplished fact. This raise of gasoline, from an undesirable product to the product of major importance, required remodelling of old plants, and this was done by shutting down practically every refinery for about two months during 1924.

An additional refinery will be put in operation in 1925-26 to take care of the increased demand in lubricating oils. The lighter crudes will be treated for gasoline locally, thus saving losses in storage and in refining. Installations worthy of attention are, the Bibi Eibat old kerosene stills remodelled for steam treating the Bibi Eibat light crude, giving about 8 per cent of gasoline; and the Sourakhany similar stills giving 14 per cent from light (red) Sourakhany crude.

(Continued on page 89)

(Continued from page 86)

The accompanying table shows the refining operations for past years.

Refining in Baku District

Total Crude Refined

Year	Barrels
1922-23	15,400,000
1923-24	16,000,000
1924-25	25,700,000
1925-26 (estim.)	30,000,000

Products Obtained (in Per Cent. of the Total)

	1922-23	'23-'24	'24-'25
Kerosene	25.0	21.6	22.7
Lubricating oils	14.1	17.2	13.0
Gasoline	2.3	3.1	5.6
Fuel oil	58.1	57.5	56.4
Various	0.5	0.6	2.3

Azneft is planning to build several new refineries embodying the latest American principles. Cracking stills are to be installed. Construction of an 1800-barrel refinery in Baku is already under way, it is to employ the cracking system of the British firm Vickers. The plans for new refineries in Batoum are under consideration; their completion will coincide with the construction of the new pipe line from Baku (about 1928).

Energetic development of gasoline manufacture reached a point when only part of the product could be exported and marketed, and in October, 1925, a considerable amount of gasoline was held in storage. However, new contracts recently made will relieve the situation.

Transportation

During the past operating year the transportation units were forced to their limit, and were able to move from Baku 27,600,000 barrels.

The Caspian Sea tankers moved in the 1924-25 operating year about 18,000,000 barrels, or 65 per cent of the total; 91 per cent of this tonnage went to Astrackan for home markets; 1.5 per cent was shipped to Petrovsk (mainly lubricating oils and gasoline), 0.3 per cent was exported to Persia and 5.4 per cent went to Krasnovodsk in Turkestan. The fleet operated 22 tankers with 37,813 tons capacity, against 29 boats with 41,583 tons capacity last year. The work was towards capital repairs of engines, thus speeding the trips. An increase in tonnage during the present year will be small, but the efficiency is likely to increase. The Caspian Transport Trust placed orders for 8 new Diesel driven tankers of 50,000 barrel capacity each. These should be delivered by 1927.

The kerosene pipe line to Batoum experienced mechanical troubles in the beginning of last year, and is not working to its maximum capacity. During last year 3,080,000 barrels of kerosene were pumped; 92 per cent of it went via Batoum to foreign markets, and 8 per cent were consumed in Caucasian republics. The increased demand of export kerosene warrants opening additional substations along the line, and the quantity transported in 1925-26 is likely to be larger. The work on a new pipe line for crude is under way. Profiles are being worked out, stations designed and general estimates made. Azneft's budget for the current year assigns $2,500,000 for the construction and for equipment to be ordered abroad. The length of the new line is estimated at 600 miles.

Railroads took care of over 5,000,000 barrels, thus practically equalling the pre-war figures. Of this amount about 4,500,000 barrels were exported through Batoum, 325,000 barrels were consumed in Caucasus and 120,000 barrels were moved to Russia. No large increase is contemplated in the rail transport for next year, since the number of tank cars available is limited.

The total capacity of transport for 1925-26 can be fairly estimated at 32,000,000 barrels basing conclusions on work done in September and October, 1925.

Employment

The total number of men employed in the Baku district decreased from 49,000 in October, 1924, to 45,000 in October, 1925. This drop is due entirely to the decrease in unskilled labor. The decrease resulted from the usual migration of labor, while the increase was checked by the strict order of the main office, not to engage new men. At the same time the lack of skilled labor is still being felt badly.

It must be understood that the Azneft administration is not free to dispose of its labor, as are the big corporations of the United States. In the first place labor has much power, and in the second place Caucasus does not support any other major industry that could take care of the readjustment in the oil areas. Thus the Azneft's only possible way of decreasing the total number is to release the men wishing to leave, and not to engage new workers.

The factor of decreasing labor is perhaps the most encouraging sign in the Azneft's district, since the proportional decrease in wages will give a wider margin of profits. The drop of 4000 men during last year gives Azneft already a saving of $1,340,000 per year. Further decreases will undoubtedly take place, but after reaching a certain point, they cannot be regarded in whole as saving, since the increased efficiency of the remaining part will tend to push the wages to higher levels. However, such a point will not be reached for at least two years, and the decreases during that period might be considered as net saving.

The wages of labor were continuously increasing during the last two years, and the general welfare of the field workers was considerably improved. The salaries of administration officers, engineers and office workers made considerable increases for the first time since nationalization. This increase is in line with the new policy of the Soviet Government, recognizing the trained workers as an important factor in building up the country. The table gives the average of wages and salaries in Baku for the last five years.

Average of Wages and Salaries in the Baku District

Per Month in United States Dollars

	March	Sept.
1921	$ 3.25	$ 3.75
1922	7.50	11.85
1923	14.10	14.10
1924	23.35	23.10
1925	25.00	30.00

(Continued on page 90)

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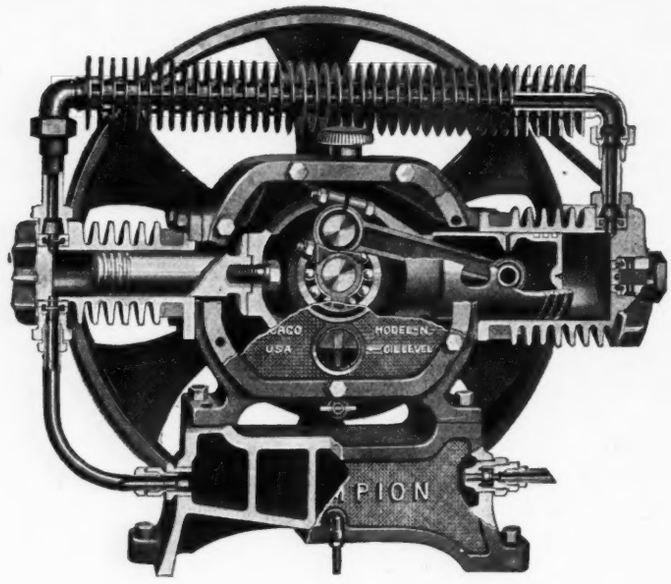

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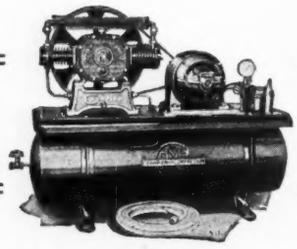

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(Continued from page 89)

The salaries for administration officers and engineers average about $150 per month, with variations from $90 to $250. The improvements in this class are radical, since salaries of former years were similar to the wages of labor, or slightly higher. The increases in the wages and salaries will undoubtedly create much better living conditions, and thus stimulate better efficiency.

One of the latest innovations of the Azneft is the premium plan of production. The production of a group of wells for the previous three months is averaged and taken as 100 per cent. For any increase in the fourth following month the whole personnel of the given area is to be rewarded. The administration of the field is free to exclude any man from the reward list in case it considers the worker did not deserve the bonus.

Financial Position

The cost per barrel during the 1924-25 operating year is estimated at $1.33, includes the interest charges on loans, depreciation and present expenditures in Europe and the United States. The 1925-26 year will show a higher cost per barrel due to increased orders for equipment placed outside of Russia.

It is surprising that with extensive purchases, the Azneft is in a position to balance its yearly books with only small losses (about $10,000,000 for each year, past and current as estimated), the deficits are covered by loans from banks. It must be remembered that before nationalization the major industrial concerns of Europe and Russia had their offices and supply houses in Baku, carrying all necessary equipment; thus eliminating extensive purchases of supplies. Unfortunately in addition to closing all foreign supply houses in Baku, the factories of Russia are not in a position to give such a variety of products as before the war, and consequently Azneft must carry large stocks, since orders from Europe and the United States cannot be counted on in the case of an emergency. This factor alone is responsible for a considerable part of the deficit.

It is estimated that about $150,000,000 will be required by Azneft for equipment purchases during the next five years. The Central Government subsidies were limited to a loan of $12,500,000 in 1923; this loan is already being cancelled at the request of the Treasury Department. The financial bureau of the Azneft estimates that in the next two years, when the development is to be most intensive, all the receipts of Azneft will not be sufficient to balance the requirements. The Central Government, however, is increasing the tax on crude from 16.5 to 39.1 c. per barrel. At the same time the Department of Commerce authorized an increase of 12.6 c. per barrel in the average price of petroleum products marketed in Russia; thus making the net increase in taxation equal to 11 c. per barrel, or to approximately $6,000,000 for the Baku district alone in the 1925-26 operating year. The total

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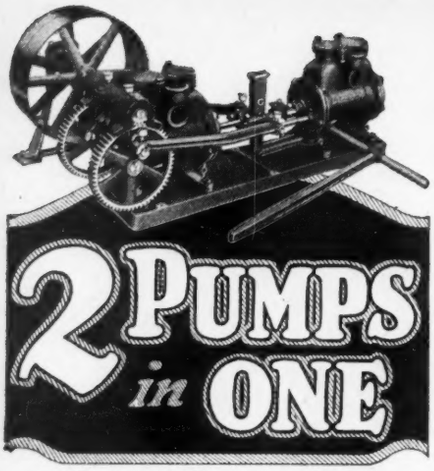

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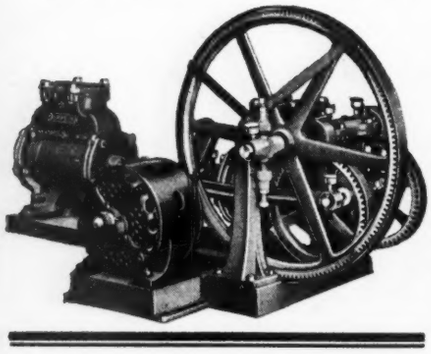

taxation is being brought to $15,000,000, or about 20 per cent of the expected gross income for the same year. The Central Government thus places a serious handicap on the oil industry, which will be but partly overcome by credit operations.

Export Trade

Achievements of great importance were made by the Russian Oil Trust in the field of the export trade. The export of petroleum products is of extreme importance to the Soviet industry for two reasons, in the first place it provides a kind of safety valve that takes the excess of products not consumed in the interior of the country, especially the gasoline, and in the second place it supplies a fund of foreign currency that is necessary for the extensive purchase of equipment.

The old policy of casual orders is being gradually altered to long-term contracts with major distributing companies, like the Standard and Shell groups, and with various departments of European governments; for an example the contract with the Navy Department of Italy. Besides, the Russian Oil Trust is contemplating a very broad program of distribution of oil products through its own agencies. In accord with this plan large tank farms are being built at strategical marketing points in Europe, and it is likely that the Trust will be very successful in this work, since it is done with great care. The policy of the Trust in getting new markets is to undersell its competitors, and the Trust will be in a position to do so effectively in the course of a few years, when the present building program is completed.

The total export in the 1923-24 operating year amounted to 4,950,000 barrels, and in 1924-25 to 10,000,000 barrels, an increase of over 100 per cent. This rapid gain was due almost entirely to the increase on the export of the fuel oil from a negligible amount in 1923-24 to about 3,500,000 barrels in the past year. The exports in all other products showed increases, but the relative importance of products changed radically. Thus in 1923-24 kerosene represented 45.4 per cent of the total exports and gasoline 13.2 per cent; in 1924-25 kerosene fell to 23.6 per cent; gasoline increased to 14.4 per cent and the fuel oil from 4 to 35.5 per cent.

In the past operating year (1924-25) the relative standing of the three areas in the exports was as follows:

Exports from Russian Fields in Per Cent. of Total

	Baku	Grondy	Emba
Lubricants	100		
Gasoline	20.8	79.2	
Kerosene	100		
Crude oil		92.3	7.7
Fuel oil	66.7	33.3	
All products	69.0	30.3	0.7

The total receipts of the Trust for the exported products in 1924-25 are estimated at $27,800,000; the expenditures in connection with the transportation and storage are $8,400,000. Of the net receipts the share of Azneft is $12,400,000 of Grozneft $6,875,000 and of Embaneft $125,000. These figures show the importance of gasoline exports, since Grozny's exports are based mainly on gasoline and are quantitatively much less than one-half of Azneft's.

The following shows the relative importance of countries of export.

Relative Importance of Countries of Export 1924-25 Operating Year

	Per Cent
Britain and colonies	45.7
France	14.6
Germany	13.2
Italy	12.7
Belgium-Holland	5.6
Austria	1.4
Hungary	1.2
Scandinavia	1.0
Egypt, Syria, Palestine	1.0
Latvia	.9
Turkey	.6
Jugo-Slavia	.5
Greece	.5
Bulgaria	.3
Esthonia	.2
Fuel oil for ships	.6

	Per Barrel
Kerosene	$1.86
Gasoline	4.50
Lubricants	5.00
Light crude	1.80
Fuel oil	1.50

The Standard Oil Co. and its subsidiaries bought and distributed in 1924-25 about 33.4 per cent of the total exports of the Trust. Shell and Anglo-Persian group handled 9.7 per cent, independent groups bought 52.7 per cent and the organizations owned by the Trust handled by 4.1 per cent of the total. The most striking variation since last year is the increase in the purchase by the Standard group from 10.5 to 33.4 per cent, and the decrease in the instance of the Shell-Anglo Persian from 44.4 to 9.7 per cent. The relative importance of independent groups and of the Trust's selling agencies remained practically the same.

The prices for Russian petroleum products f.o.b. Batoum and Touapse were approximately as follows:

	Per Barrel
Kerosene	$1.86
Gasoline	4.50
Lubricants	5.00
Light crude	1.80
Fuel oil	1.50

The prospects of the increased consumption of petroleum products throughout the world, and the probable decrease in production of the United States and Mexico, seem to indicate that within a few years the European markets will be supplied exclusively by oil from Russia, Persia, and Rumania. Thus, everything is favoring the growth of the Russian oil industry, and if we may judge by results already attained this growth will be rapid.

Compiles Freight Rate Table

EL DORADO, ARK.—Victor H. Smith, vice president and general manager of the Lion Oil Refining Co., has had prepared a table of freight rates showing rates both per gallon and per hundredweight on petroleum products of various classes from its refinery at Pearson, Ark., to points in Arkansas. The table also includes comparative rates from Oklahoma and Shreveport, La.

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Figure 59—Oil Pump

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Superstitions About California Oil Areas Have Explanations, Too

By Paul Wagner
N. P. N. Staff Writer

Article 2 in a Series on Future Oil Production in California

THERE exists in various parts of the country beliefs that amount, on their face, to superstitions about the productivity of mineral claims or potential oil properties located with reference to some specified condition or thing.

In the Mid-Continent oil territory, a belief of this kind often attaches to drilling locations made adjacent to grave yards; in certain of the Michigan mining areas individual types of vegetation are described as marking the presence of ore deposits beneath the surface; and in the Los Angeles Basin of California structural conditions favorable to the accumulation of petroleum are interpreted to exist at, or adjacent to, brickyards.

Each belief, in its own way, bears similarity to a superstition among the natives of Smyrna regarding the growing of that choice variety of fig for which their country is famous. These natives know the impossibility of getting their orchards to bear fruit unless small baskets of another type of figs are placed in the branches of their trees and allowed to remain there through the blooming season. Not understanding the "why" of the situation the natives of Smyrna have built up around this condition a complicated rite which amounts, with them, to a superstition.

Efforts were made for years to grow Smyrna-type figs in California, but unsuccessfully. The trees would grow luxuriantly and blossom; but fruit invariably failed to appear on their branches. Investigation of the causes failed to bear any more fruit than the orchards. Finally a commission of horticulturists went to Smyrna to study conditions at first hand.

The "Why" of Superstitions

The superstition of the Smyrna natives was then learned about. Further studies disclosed that bearing trees of the choice fig type are of a female species polenized through the emergence of a small worm from the male variety of fig placed in baskets in the trees at blossom time. This fact established, and the information made use of, choice Smyrna-type figs are now grown regularly in parts of California.

An explanation of vegetation as a "key" to ore deposits in Michigan mining territory is likewise, simple when governing conditions are understood. Certain sulphides favorable to the growth of special types of vegetation collect along earth fractures, or faults, in mining territory. These mineral elements are, in turn, the product of conditions having their part in the formation and depositing of ores.

The superstition about oil wells of greatest productivity being located adjacent to graveyards in petroleum-bearing areas is similarly easy to explain. Graveyards are generally located on high ground, where drainage conditions are best; and, although the statement will not always hold good, the fact is that such a condition has resulted in well locations proving exceedingly productive many times. This has brought about a superstition which also has a simple explanation. The high ground and drainage actually indicated a structural condition at, or near, the crest of the anticlinal in which oil had accumulated.

In the Los Angeles Basin, the presence of a brickyard means the existence at the surface of certain clays which provide a "key" to underground structural conditions that may not be otherwise measurable. In other words, they constitute outcrops which indicate a "high" in the sub-surface bedding.

The geologist, in a collective sense, uses data of these general types for what it is worth in the light of past and present experience; the so-called practical man scorns the term geology, but still follows it through his "hunches," on perhaps identical data; in the case of the native growers of Smyrna figs their superstitious rites prevail to the end of accomplishing a result similar so that obtained by the scientific horticulturist, but—the last mentioned understands why and the Smyrna native does not.

As late as 1923, when record-breaking oil production appeared in the Los Angeles Basin, because of the simultaneous development of three major light oil fields, all too little was understood about the earth movements, or dynamics, which formed the structural influence for petroleum accumulation down in the Basin itself. Productive fields had been developed along the rim of the Basin, in or adjacent to the foothills of the mountains.

Clews to the existence of sub-surface structure in the center of the Basin were, to say the least, obscure. Buried structure, if not reflected at the surface in some manner, is discouraging to the operator as well as the geologist. A few more daring than the rest will occasionally explore at great cost and against great odds and reap a rich reward; others will explore at similar costs and against similar odds and obtain nothing but a loss for their pains.

Losses followed by ultimate gains finally resulted in the discovery of the prolific Basin fields of Santa Fe Springs, Long Beach and Huntington Beach. It is unimportant here to discuss the reasons why the discovery wells were drilled except to say that in the light of Southern California experience geological data were obscure, or lacking, at the time.

Discovery wells were completed, however, and then development work grew apace. Sub-surface data threw light on obscure surface indications of structure, experience teaching many things not previously recognized as having geological bearing on the Basin region.

Topographic "High" Important

Now it is possible to say that a topographic "high" anywhere in the Los Angeles Basin may be considered definitely to overlie sub-surface structure, nothwithstanding the recent (Pleistocene) deposition of the area. It is explained that the deposition is so recent, in a geological sense, that the reflection of underlying structure has not been worn away at humps in the Pleistocene. Of course, it is necessary to distinguish as between an erosional feature and a topographic "high" in studying the Basin, hence some fine discriminations may be necessary in reaching judgments.

Had the dynamics of the Basin been thoroughly understood five years ago, or even later, the history of Southern California development might have been far different. Rosecrans, Dominguez, Inglewood and other fields would have been in different operating hands, at least in part; and in the case of Long Beach and Huntington Beach strong interests rather than town-lot operators would have controlled. It is conceivable that a single operating company might have owned one or more of the fields in their entirety.

Santa Fe Springs is located en echelon to fields around the rim of the Basin, but is itself down in "the flats" northwest of the Coyote Hills development. Efforts to line up new fields with it, at Anaheim or Bandini, have failed so far. There is room in the Basin, however, for similarly located fields en echelon to others along its rim.

From Huntington Beach to Inglewood a fracture zone known as the Central Uplift is now definitely measured.

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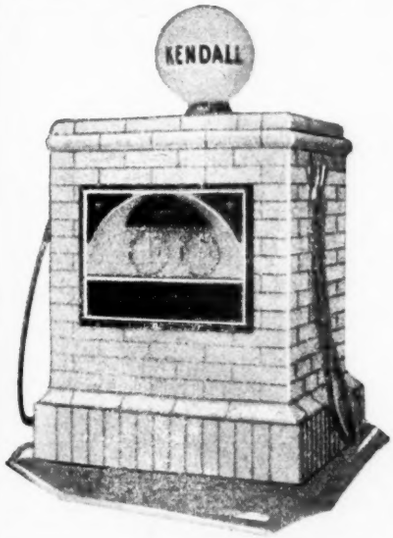

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NATIONAL PETROLEUM NEWS

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Along it is located the Rosecrans, Dominguez and Seal Beach areas, in addition to the two first named developments and Long Beach. Beyond Huntington Beach to the Southeast, a little heavy oil has come from a few wells drilled at Newport Beach. Between Huntington Beach and Long Beach, in the south half of the uplift area are located the Sunset Beach and Seal Beach prospects, the last mentioned having one commercial well to its credit. At the north end, between Rosecrans and Inglewood, drilling is now under way to test the Hyde Park prospect.

Torrance In Another Fold

Back toward Point Firmin, where the Palos Verdes hills bring basic complex rocks to the surface, the Torrance field is found in the "flats" between Redondo and Wilmington. The Torrance field is the single development along the sub-surface ridge it marks. A small anticline has been mapped along the interior of the Palos Verdes hills and it is possible that a structure along the Torrance line of folding extends out into the ocean at Manhattan Beach.

Should drilling prove a structure at Manhattan Beach it is probable that only part of the field will be possible to exploit, as that part of it extending out into the ocean would present operating obstacles probably impossible to overcome.

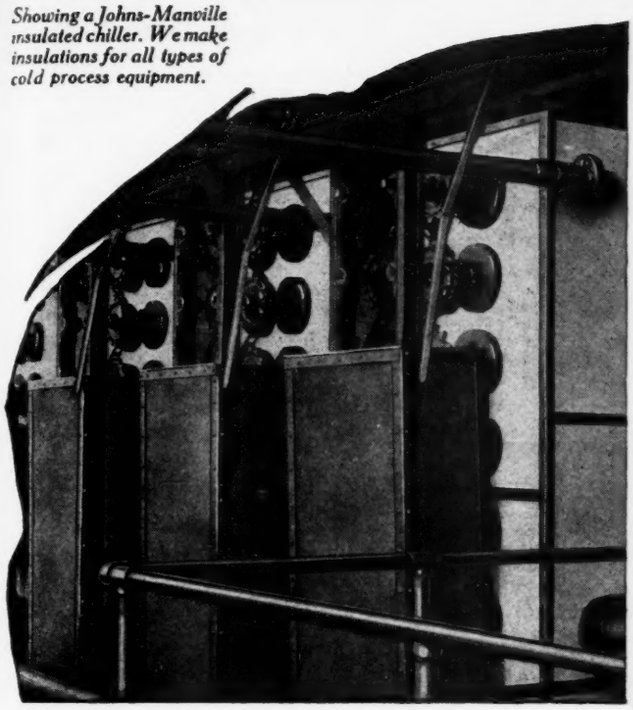
There are also possibilities of still another line of faulting or folding, or both buried beneath the surface in the center of the Basin. Such an uplift would extend approximately parallel with the so-called Central Uplift and would lie between it and the fields along the rim of the Basin.

The buried character of such an inferred uplift, would, however, call for even deeper drilling than the 4000 to 6000 foot operations of the recent past, and the expense of wildcatting will delay indefinitely the bringing-in of such fields as may exist under the conditions suggested.

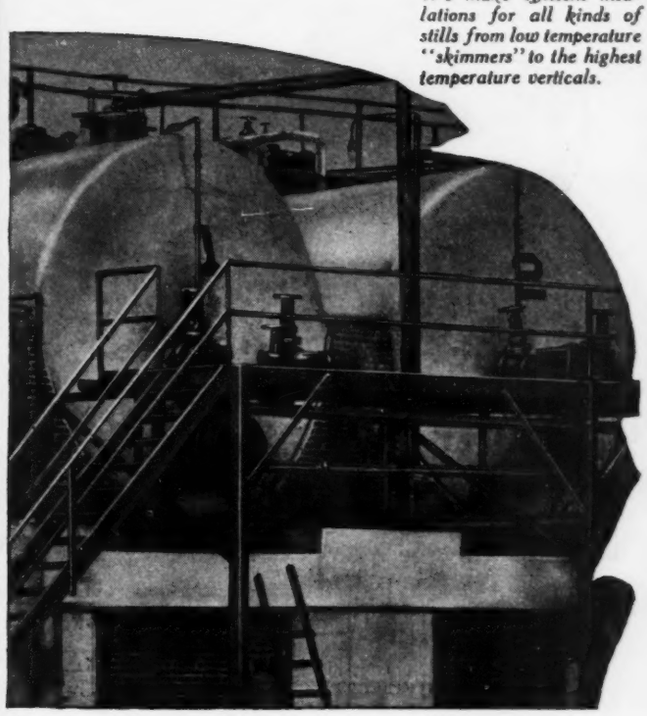
ATLANTA, March 12.—The promoter and moving spirit in the preliminary arrangement for organizing the Georgia-Alabama Independent Petroleum Marketers' Association was C. D. Campbell, southeastern representative of Deepwater Oil Refineries Inc., of Houston, Tex. Mr. Campbell's headquarters are in Atlanta.

COLUMBUS, O.—The Pure Oil Co. will build a bulk plant in Philadelphia, Pa., this spring and enter that city for retail business. The company will also build a bulk plant at Marietta, O.

The company's Philadelphia offices have been moved from the Lafayette Bldg., to the Widener Bldg., according to C. A. Ward, editor, "Pure Oil News," the company's house organ.



Showing a Johns-Manville insulated chiller. We make insulations for all types of cold process equipment.



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National Petroleum News

834 Caxton Building Cleveland, Ohio

Former Smackover Firm Drilling in Bad Lands

ROCK ISLAND, ILL.—The Pine Ridge Petroleum Corp. which was recently organized by the officers of the Smackover Petroleum Corp. of Arkansas which brought in during May, 1925, one if the large wells in the Smackover field, is now drilling in the Bad Lands of South Dakota. A good oil showing was made before the winter caused the company to shut down operations.

Officers of the Smackover Petroleum Corp., which sold its holdings in the Smackover field to the Phillips Petroleum Co., Bartlesville, Okla., were the men who were formerly at the head of the Tri-City Oil Co., Rock Island. The latter company sold its properties on Aug. 1, 1924, to the Roxana Petroleum Corp., St. Louis.

Officers of the old Tri-City company, who are now operating the Pine Ridge Petroleum Corp., were: Dale N. Johnson, president; John B. Hawley, vice president; Walter H. Flanigan secretary; and W. J. Quinlan, treasurer.

Well-Known Oil Men Form Jobbing Firm

WICHITA FALLS, TEX., March 15—Plains Gas & Fuel Co., Inc., was recently organized here, with L. M. Lingenfelter, formerly sales manager for the Miller Petroleum Co., Kansas City, Mo., president; W. C. Duncan, just resigned from the American Refining Co., Wichita Falls, secretary and treasurer; E. S. Bristol and Roscoe Davis, who are associated with R. M. Waggoner here, vice presidents.

The company will market petroleum products in car load lots and supply fuel oil for drilling operations in north and central Texas in tank trucks. The company expects to develop properties this year and to buy and sell producing properties as well as daily crude runs.

Many Rate Cases Come Up In April

WASHINGTON, March 13.—The Interstate Commerce Commission this week assigned an unusually large number of complaints, by oil companies, against freight rates, for hearing by examiners. To Robert L. Shanafelt has been given the work of taking the testimony of southwestern refiners who think the rates on gasoline from the southwest to the southeast are unreasonably high and unduly prejudicial. To Shanafelt has been assigned the following:

April 2, Mayo Hotel, Tulsa, No. 17,441 Transcontinental Oil Co. vs. St. Louis—San Francisco et al; No. 17,690 Oklahoma Natural Gas Co. et al vs. Santa Fe et al.

April 6, the United States Court room, Ft. Worth, No. 17,911, Arab

Gasoline Co. vs. Aberdeen & Rochfish et al.

April 7, Fort Worth, No. 17459 Texhoma Oil Refining Co. vs. C. R. I. P. et al and No. 17498, Litwood Oil & Supply Co. et al vs. Santa Fe et al.

April 8, Ft. Worth No. 17870 Tidal Western Oil Corporation et al vs. M. K. T. of Texas et al.

April 8, United States Court Room, Ft. Worth, No. 17561 American Refining Co. et al vs. Aberdeen & Rockfish et al.

Other assignments are:

April 1, Hotel Jefferson, St. Louis, No. 17471 Roxana Petroleum Corporation vs. Big Four et al before Examiner Konigsberg.

April 16, Houston Tex., United States Court room, before Examiner Shanafelt, No. 17506 and No. 17507, Humble Oil & Refining Co. vs. Alabama Great Southern et al and Beaumont, Sour Lake & Western et al.

Wichita P. L. Reports Profitable Year

CLEVELAND, March 11.—At the annual meeting of the Wichita Pipe Line Co. recently in Wichita Falls, Texas, the following directors were elected: Roy B. Jones, W. M. Priddy, W. J. Shaw, W. W. Silk, O. H. Berryman, P. F. Gwynn, D. O. Johnson, L. V. Hull, and W. F. Davis. Officers elected are Mr. Jones, president; Mr. Priddy, vice-president; Mr. Hull, vice-president and general manager, Mr. Gwynn, secretary-treasurer, and A. W. Eichenberger, assistant secretary and treasurer.

The company reported a profitable business in 1925 and a 5 per cent dividend was declared by the directors, payable Feb. 15. The company is ownd and controlled in Wichita Falls and operates 152 miles of line in the Wichita Falls district. It is building nine miles of line into the Priddeaux field in southeastern Archer county.

Opens Tulsa Office

KANSAS CITY, MO.—The Petroleum Oils Corp., with headquarters here, has opened offices at Tulsa in the Kennedy Bldg. This new office will be in charge of R. B. Tansel, who has had wide experience in the oil marketing business, he having been for the past four years sales manager of the Ranable Feb. 15. The company is owned to that, for several years with the old Anderson & Gustafson company, according to R. H. Ericksen, treasurer.

Oil Club Formed at El Paso

EL PASO, TEX.—A petroleum club was recently organized here by local oil jobbers. Officers are: A. L. Behringer, Home Oil Co., president; V. H. Anderson, vice president.

Meetings are held each Monday, according to A. M. Lockhart, vice president of the Rio Grande Oil Co. here.

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Have Your Engineering Department Write for Test Samples

Points Oil Distributors Should Know About Tractor Lubrication

By Jack Nourse
Nourse Oil Co., Kansas City, Mo.

The accompanying data on tractor lubrication was prepared by Jack Nourse, Nourse Oil Co., Kansas City, and was contained in a talk he gave before the Nebraska jobbers association. Mr. Nourse has made a study of this particular problem and his ideas are well worth consideration by marketing companies generally serving this class of trade.

I AM not going to suggest the specifications on the proper oils to lubricate these tractors. Each marketer has some compounder or refiner with whom he can deal and who, of course, can supply him with the proper tractor oil, but this data has been given us by tractor factory experts.

Rumley Tractor

Rumley has replaced its old types of New type 15-25 Model L replaces New type 15-25 Model L replaces old type 12-20, new type 20-35 Model M replaces old type 16-30, and new type 30-60 Model S replaces old type 30-60. All old type tractors have open gears, while all new type tractors have enclosed gears, higher speeded engines and lighter weight.

The Rumley runs hotter than other tractors in order to burn kerosene fuel.

The lubrication of the motor in the new type tractor is secured by a force feed lubricator and splash which constantly carries fresh oil by pump to the main bearing with the additional help of the splash.

The speeds of the new Rumley tractors are: 15-25, 750 revolutions per minute; 20-35, 640 RPM, and 30-60, 470 RPM. Capacities of crankcases of new Rumleys are: 15-25, one gallon; 20-35, one and a half gallons, and 30-60 three gallons.

If a Rumley owner complains of carbon, of losing power and of engine knock, advise him to look at the valve stems and if they are corroding or covered with carbon, clean them off. Stop using heavy lubricating oil on them, instead use kerosene only.

Use 600 Transmission

Use 600 transmission oil for all Rumley transmission. Capacities of transmission on new Rumley are: 15-25 5 gallons; 20-35 6 gallons, and 30-60 8 gallons.

Journals of the Rumley tractor are equipped with Alemite greasing devices.

For the radiators of both old and new type Rumleys use winter black oil as a winter black oil is necessary on account of its lighter body and better cold test, as a too heavy bodied oil will tend to clog the small pipes and prevent circulation. The reason the oil is used for cooling is because a kerosene burning engine becomes intensely hot and it is intended that the engine shall become intensely hot because it vaporizes the fuel better and produces better working power.

In winter months, because of the long distance which the oil has to travel through pipes watch your step with the Holt caterpillar tractor. The lubrication of the 10-ton and the 5-ton Holt motors is by full force feed. A rotary gear oil pump fitted with filter screen and cam shaft, and located in the reservoir at the bottom of the crank case delivers oil under pressure to all bearings. The system being constantly under pressure and control of the pump, permits the motor to be operated on very steep grades without any danger from lack of oil or from oil leakage.

The force feed oil system insures correct lubrication at extremely low temperatures. Oil leads convey oil to the five main bearings where it is delivered through the drilled passages in the crankshaft to the crank pin bearings. From the crankpin bearings the oil travels through copper tubes to the connecting rods into the piston pin bearings, after which it is distributed to the cylinder walls, lubricating them and the pistons.

Timing Gear Lubrication

The timing gears are lubricated by oil from the pump. A pipe from the main oil line conducts oil through the drilled idler gear shaft into the timing gear case where it is distributed by centrifugal force to the gears, the surplus oil flowing back to the crank case by gravity. An oil pressure relief valve for the adjustment of the oil pressure is located at the rear of the crankcase. An oil pressure gauge is mounted at the rear of the motor in the view of the drivers. The Holts are all gasoline burners.

On all old style Holts, whose serial numbers run below 18,777 the RPM are 1350 on the 10-ton and 1000 on the 5-ton. On all new Holt tractors whose serial numbers run above 18,777 the RPM are 750 on both 5 and 10-ton tractors.

International Harvester

McCormick-Deering tractors, types 10-20 and 15-30, are both kerosene burning engines. The crankcase of the 10-20 holds six quarts. The crankcase of the 12-30 holds two gallons.

The International people decry the use of distillate and say only kerosene of 39 gravity or better should be used because the distillate generates too much heat. If distillate is used a very heavy oil should be used, because under those conditions the tractor oil will have a double duty of lubricating and cooling. They urge their dealers to stick to kerosene.

A gear driven rotary oil pump in the sumps gives a combination of force, circulation and splash. The oil is kept in circulation by this gear driven oil pump, which delivers oil to troughs underneath. Whether the tractor is working up-grade, down-grade or on the hill side, the splash carries a mist of oil to the wrist pin. The oil pump has a strainer in the bottom which prevents clogging and insures it to be constantly working.

Both the 10-20 and the 15-30 have a speed of 1000 RPM. Transmission and differential run in an oil both of heavy 600 transmission oil. Fill to the level of the oil level plug.

The motor in the International truck is the same as that which is used in the 10-20 tractor although it is a little smaller and burns gasoline. For the internal gears which transmit the power to the wheels on the International truck a gear lubricant is the ideal grease.

Twin City Tractor Data

The Twin City is a kerosene burning tractor with an all force feed oiling system. The pump is outside the crankcase and is a rotary pump driven by the crankshaft. The pump is located above the level of the oil in the sump and constantly forces the oil through a hole in the crankshaft to the crankpin where it lubricates the connecting rod bearing. The oil is squeezed out of the side of the connecting rod bearing, which being in motion, whips an oil spray into the cylinders, thus lubricating the cylinder walls, pistons and wrist pins. In fact the whole interior of the crankcase is an oil mist which thoroughly lubricates all interior parts, such as camshaft bearing, cams, valve push rods and guides.

A screen or strainer is located at the oil pump intake and must be taken out and cleaned by washing it in gasoline at least once a week. In all new motors, the oil strainer must be removed daily at first.

The 12-20 type runs at 1000 revolutions per minute. The crankcase holds three gallons and the Twin City people recommend changing oil after 60 hours of use.

Fill transmission case to oil plug level with transmission oil. The gears forming the transmission run in this oil and when the tractor is in operation, the revolving of these gears sprays the heavy oil over the working parts inside of the transmission case, including the rear axle

HAVOLINE FRANCHISE SUCCESS No. 8

Advertisement of Indian Refining Co., Inc.

One of the Gentry Oil Company's Drive-ins, which are located at strategic points to catch Enid's motor traffic. Left: Dick Gentry, Sales Manager. Right: C. M. Gentry, General Manager.

Gentry Finds National Tie-Up Added Prestige to Own Local Oil

Far From Cutting Into Sales on Local Brand, Havoline Caused Boost in Entire Business—Oklahoma Outfit Always Had Trouble Marketing a National Till Indian's Franchise Plan Came Along

GROWING old doesn't necessarily mean shutting up like a clam—or becoming immune to new ideas. Some people have the knack of keeping constantly youthful. Some companies, too, seem able to do the same thing.

For instance, the Gentry Oil Company—a thriving organization in Enid, Oklahoma. As local oil companies go, it's as old as Methuselah! For its birth took place in 1907, when the motor car was only a noisy kid, and hadn't yet outgrown its goggles, hand crank and carbide lamps. Yet from Gentry Oil's first days—as the pioneer independent oil company and builder of the first drive-in service station in Garfield County—it has forged ahead steadily. It has always been abreast of the times. It has always had its eyes on the future.

Saw Its Opportunity

Quite natural, then, that Gentry should have been one of the first to jump at the chance of marketing, along with its local brands, a national oil on a long-term territorial franchise! When the opportunity came along, it was ready to make a quick grab. And—if you want to know what success the franchise brought—just ask C. M. Gentry, the company's general manager! Or, if you prefer, you can hear its hustling sales manager, Dick Gentry, tell the same story.

From the start Gentry Oil has handled its own oil and gas, known under the brand name of Genco. Yet this didn't prevent the company's taking a look around for another oil.

"We realized all along," says C. M. Gentry, "that we could widen our market by adding a good, nationally advertised oil. We linked up our name with several different national brands. But, every time we did a good bit of sales promotion on a non-exclusive sales policy, they broke into our territory in direct competition! We didn't stand a ghost of a chance to market their oils—either wholesale or retail—at a justifiable profit."

Discouraged, but not to be downed! In 1912 Mr. Gentry added Havoline to the Genco line. He felt he couldn't afford to push it as strongly as he had already pushed the other nationals; he was getting wary, like the cat that has put its paw into the fire once too often. But Havoline fought its own battle. People bought it. And the general impression went 'round that it was a higher quality oil than the nationals previously marketed by Gentry.

"But the real solution of our troubles," Mr. Gentry declares, "didn't come till last July. Then Indian Refining made its announcement offering exclusive territorial sales rights on Havoline to local oil companies—and we saw for the first time a chance to be protected in our ownership of a national brand."

Watch results! From August first to December thirty-first, 22,136 gallons of Havoline passed through Gentry's hands. Havoline grease business reached a higher peak than ever before in the history of the business. And this is the remarkable thing:

"Sales of our own Genco Oil," says Dick Gentry, "instead of falling off in the face of Havoline's sudden boost, climbed 4.2 per cent. Genco Oil sales to dealers to whom we have sold Havoline have increased 11.8 per cent.

"Of course, this hasn't been done without working. Co-operation with the Indian Refining Company in the use of its sales helps has undoubtedly helped to swell the total figures. We make proper use of the advertising Havoline is doing by prominently displaying copies of the Havoline advertisements which are sent to us by Indian's sales service department before they come out in the magazines."

Advantages Loom Big

All in all, the Messrs. Gentry are more than satisfied with what Havoline is doing for them.

"We're thoroughly convinced," Dick Gentry will tell you earnestly, "that it's much to the advantage of the independent oil marketers to handle, together with his own brand of gas and motor oil, a nationally known and nationally accepted oil. By associating Genco Oil with Havoline we have added prestige to our own local brand. Havoline has given the public even more confidence in our business. It was only to be expected that it should increase sales on both Genco Oil and Genco Gasoline.

"And Havoline's not only worked wonders as a confidence-builder, but it has proved an important factor in our monthly profits—without adding a cent of expense to our business equipment."

(Outside Indiana, Illinois, Ohio and parts of Michigan and Kentucky (except territories already allotted), the Havoline franchise and Havoline support are open to local oil operators on a basis exactly like Gentry's. Other things being equal, inquiries are given preference according to time of receipt. Wire or write A. H. White, Indian Refining Co., Inc., Lawrenceville, Ill.)

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ASPHALT

Fuel Oil--Lubricating Oils

CYLINDER ENGINE
CORDAGE

RED AND PALE PARAFFINE OILS

bearings, thus a perfect lubrication results.

The Best tractor was formerly the leading competitor of the Holt Caterpillar Tractor, both being of the Caterpillar Type. Both concerns are now consolidated. They have two models, 30 and 60.

A force feed pump located in the bottom of the sump, run by cam shaft and spiral gears, forces oil throughout the motor through short pipes to the working parts of the engine. The main oil lead is a ¾-inch tube, which runs the full length of the crankcase and three branches from that main lead carry oil to main bearings.

There is a sump in the bottom of the crankcase and the pump sets in this sump and just over it is a screen. The oil works its way out of the bearings and falls into the crankcase, to be used by the pump again, but the screen has caught any grit from the engine or sand which may have been drawn into the crank case or moisture caused by condensation, so clean filtered oil is thus pumped each time to the bearings.

The Best tractor has another wonderful feature in the way they handle the breather pipe. The top of the breather pipe is above the radiator and above the level of the fan belt. There is attached to the breather pipe an apparatus which contains a bowl of oil at the bottom and is packed with steel wool at the top and all the air passing into the engine is filtered through this oil and steel wool. This practically eliminates the chance of sand and road dust being drawn into the engine through the breather pipe.

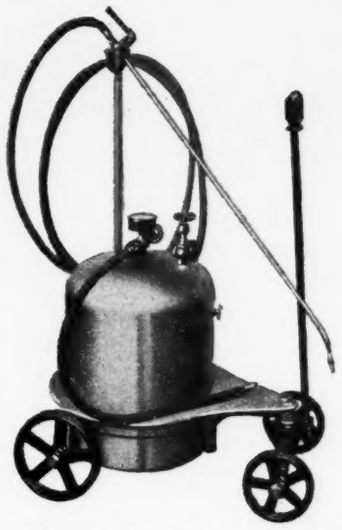
No pickets or valve chambers in the cylinder block to collect carbon. Close clearance of pistons helps to overcome dilution, also pistons have five rings which is another factor in overcoming dilution.

The crankcase holds five gallons of tractor oil, which the factory says should be changed every 60 hours under ordinary conditions and every 30 hours in sandy soil. The transmission case holds four gallons of transmission oil which should be changed every 90 days. For the front idlers and lower track rollers, the factory requires a soft fibrous grease which will settle of its own weight.

The Best tracklayer tractor burns gasoline.

The idea is prevalent among many Fordson owners and dealers that the heaviest possible oil should be used in the rear end of the Fordson tractor. This is a mistake and only heavy engine oil should be used for several reasons. The ball bearings used in the transmission are designed for engine oil lubrication and if the rolling balls are required to squeeze heavy grease out of the groove in the ball bearings, the friction is increased to such an extent that the bearings are liable to turn as a unit. This, of course, wears out the housing in which the bearing is seated as this is not intended as a bearing surface.

$45



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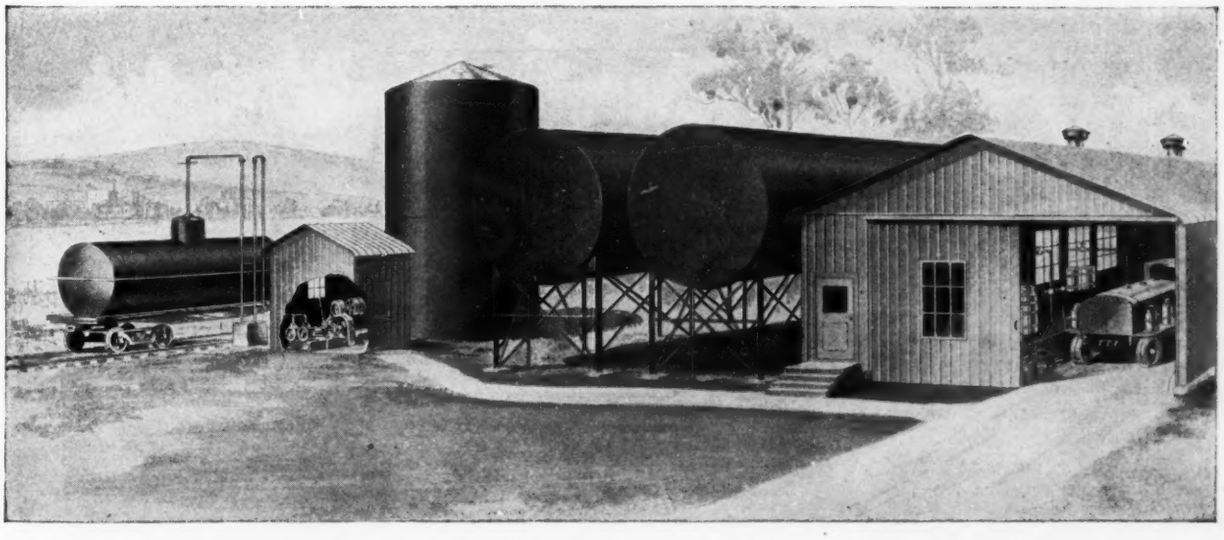

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HYDE-SCHNEIDER-HALEY MFG. CO., Rockford, Ill.

How to Keep Station Clean by Schedule And Divide The Work Evenly

By M. R. Tennerstedt
Service Station Operator, Chicago

CHICAGO, March 15

REPLYING to your request for the "story" back of my perpetual keep-clean program at the service station, I will do my best to recount the incidents that led up to it and some of the incidental thoughts that have justified it in my mind. There is really no way to determine how much business it has brought.

* * *

SOME months ago I learned, from a man professing to have the facts, that six per cent of all the employees of a certain big retail store in Chicago were engaged in keeping the place clean and inviting. Some of them work days but most of them work at night keeping doors and floors, furniture and fixtures, merchandise and machinery, cleaned. They are not the highest paid employees, of course, but they draw certainly half as much money as the average. So roughly three per cent of the company's pay roll is received by caretakers.

More or less superficially I investigated some other good institutions and was surprised to learn how many persons actually are engaged as caretakers. Certainly, I thought, this must pay returns. Maybe the dividends are not tangible but they are worth while or successful institutions would not spend so much money keeping things bright and orderly. This led me to think about it from the standpoint of the customer.

Cleanliness Drawing Card

It may be possible to get a clean, fresh piece of meat from a dirty looking butcher shop but, as a customer, I am not going to take a chance on it. Possibly I might get first-class professional attention from a dentist who has dirty finger nails and is careless with his instruments, but I am not going to make the experiment. Cleanliness somehow seems to accompany success so I guess I am not an exceptional customer. Most of the motorists who pass my service station probably think as I do about such things. The direct application to my business is this:

Will the average motorist take a chance on getting good clean gasoline and lubricating oil from dusty, gritty pumps?

Of course, I know the dust on the outside of the pump does not hurt the gasoline, but that is not the question. The important point is, "What does the customer think about it?" Is not the automobile owner likely to leave my place thinking the merchandise he bought is in just about the same condition as the pump? And suppose he has engine trouble while he is consuming that gasoline. Is he not likely to wonder, without thinking much of anything else, if that gasoline I sold him is not the one and only trouble?

Examines Own Equipment

This led me to make rather a minute inspection of my own pumps and I found them about as you will find the great majority of pumps in independently owned filling stations here in Chicago, pretty sadly neglected. And when I took a good look around the rest of the place and found the lube tanks in about the same condition.

The light globes had not been cleaned in months, the air compressor was in terrible shape—really a hazard in regard to fire. So that general inspection started me out on a cleaning campaign which, incidentally, led into a bit of labor trouble as I shall show.

As in most stations, our day is divided into two shifts: from 6:30 a.m. to 1:00 p.m., and from 1:00 to 10 p.m. I started out by tabulating what I thought should be done right away to get the place in decent shape. I went right down the list; as each shift began I told each man what was to be done on his shift. I helped along, of course. I try to take a hand about the establishment.

In about three days we had the place looking like new. I made up my mind that it never should become so unsightly again. So each day I designated different pieces of equipment or parts of the building to be attended to. Cleaning up was always the first order or business, second in importance to nothing except waiting on the trade.

After assigning the clean-up work I usually went about my routine, thinking nothing about it except to check up after a while and see that the assigned jobs had been done, giving the station a complete going over about once in two days.

Everything went along fine, seemingly, for about a month when one morning one of the men came to me with a more or less sour look and the complaint that it seemed to him he was doing all the work around the place, especially the dirty disagreeable jobs. And he further pointed out that some of the things I had slated to be done every other day were being done oftener than necessary. At the same time he suggested that some of the other jobs should be done more often than every other day because constant use of certain equipment made daily cleaning necessary.

Men Demanded Schedule

He was rather sore about it all, stressing the contention above all that he was doing all the work and the other fellow nothing. That "pleasant" little interview was responsible for the production of the Maintenance Schedule of which I am sending you a copy herewith. It has proven its worth in two important ways. First, it does away with all possible dissension between employees about who is the "fall guy" when it comes to doing the dirty work, and it is a virtual guarantee that the place always will have a cleanly, pleasing appearance without the otherwise necessary check up of the whole plant every day. Now we do not have to inspect the whole building and grounds to see what needs doing. It is necessary only to check over the jobs scheduled for that day and see that they are done. If some job should be neglected a while it would soon become conspicuous in an otherwise clean establishment.

A few words of explanation in regard to the various groupings in the schedule

Why and How to Keep 'Em Clean

THE industrial section of Chicago is among the superlatives of all things filthy during a winter thaw. Street cars running along Milwaukee avenue do not seem to run on tracks but rather to slide along in two parallel channels of slush. Passing trucks spread ice-cold liquid soot in sheets both ways from the wheels. The snow along the parking is black where hurrying automobiles have spattered mud yards beyond the curbs.

At 1700 Milwaukee avenue, on such a day as this, a member of National Petroleum News' staff chanced to observe a gasoline filling station as clean and bright as a bath room in a Battle Creek hospital—taking the liberty of a small exaggeration for sake of emphasis. So the N. P. N. man debarked from the street car and forded the avenue, scenting a story.

Finding M. R. Tennerstedt, the proprietor, he asked how he managed to keep it so swank, away out in the industrial section, in such weather. Mr. Tennerstedt pointed to a framed chart on the wall. (The chart is reproduced herewith). "How did you hit upon that plan," asked the visitor. "That's a long story," replied the proprietor. "Write it for us," suggested the scribe, presenting his card.

The accompanying article is the result.—EDITOR.

Who Uses Thin-Thick Essence Ford Non-Chatter Compound?

WE'LL TELL YOU

There is no secret about who buys Waverly's Thin-Thick Essence. We want you to know. Here are only a few of the orders—and most of them are repeat orders, too. That means everybody's satisfied. What could be a more exacting test of any product than this—what better assurance could we give you?

Thin-Thick Essence is a Ford oil compound. It is not a competitive product—nothing else is like it. Mix one gallon (there is no separation whether used hot or cold) with ten gallons of any good oil of asphalt or parafine base and you have a positive non-chatter lubricant that Ford owners buy and keep right on buying. We know, because we get the wholesale orders—and they certainly show consumer demand.

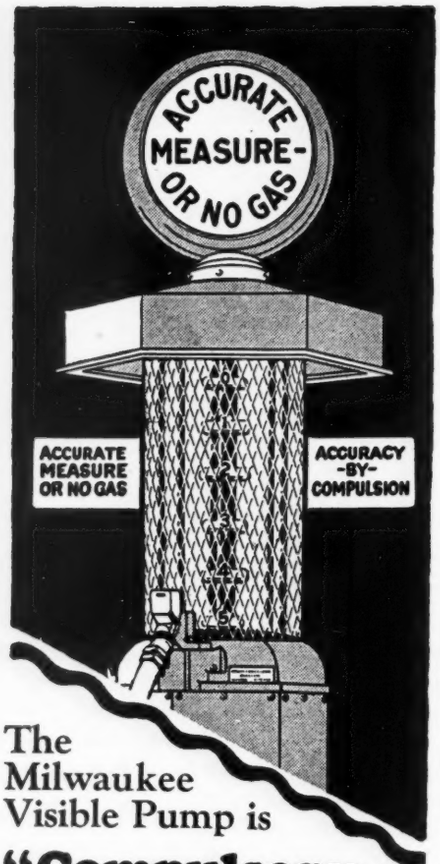
Let us send you Gratis a working sample for actual test.
Use the coupon!

Waverly Oil Works Company

ESTABLISHED 1880

5403 54TH STREET -:- PITTSBURGH, PA.

Waverly
ALL PENNSYLVANIA
Guaranteed 100% PURE PENNSYLVANIA OIL

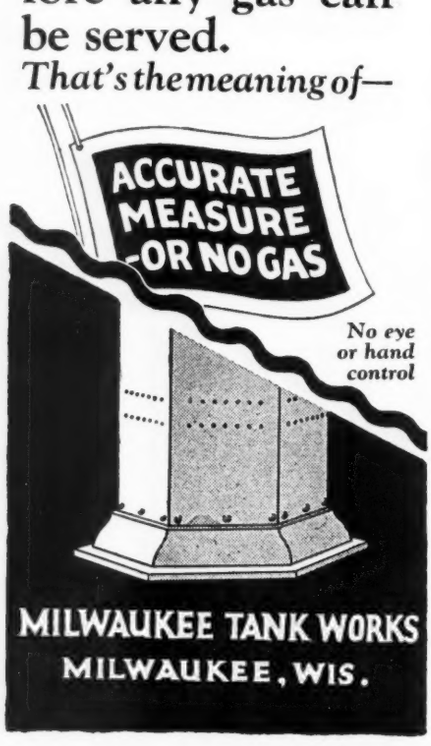


The Milwaukee Visible Pump is

"Compulsory-Accurate"

because its easy-acting Flow-Lock must click into accurate setting before any gas can be served.

That's the meaning of—



MILWAUKEE TANK WORKS
MILWAUKEE, WIS.

Tennerstedt's Schedule of Chores for Station Attendants

Morning Shift	Afternoon Shift
MONDAY	
Sweep Floors Wipe Desks Clean Wash Bowl and Filter (a) Wipe Lube Equipment Clean Pump Islands (b) Sweep Walk Around Building Police Drives and Grounds (c)	Polish and Oil Pumps Clean and Re-arrange Case Goods Wash Window Sills
TUESDAY	
Sweep Floors Wipe Desks Clean Wash Bowl and Filter Wipe Off Pumps (d) Clean Drain Pit Clean and Oil Air Compressor	Wipe Lube Equipment Wash the Drives Mop the floor
WEDNESDAY	
Sweep Floors Wipe Desks Clean Wash Bowl and Filter Clean Eave and Interior Lights Wipe the Lube Equipment Clean Pump Islands	Wipe Off Oil Pumps Polish Metal Doors Clean Shade Lights Police Drives and Grounds
THURSDAY	
Sweep Floors Wipe Desks Clean Wash Bowl and Filter Wipe Off Pumps Clean Transom Glass Wash Drives	Wipe Lube Equipment Clean and Mop the Basement Clean the Ladies' Rest Room
FRIDAY	
Sweep Floors Wipe Desks Clean Wash Bowl and Filter Wipe Lube Equipment Wash Drives	Wipe Off Pumps Police Drives and Grounds
SATURDAY	
Sweep Floors Wipe Desks Clean Wash Bowl and Filter Wipe off Pumps Clean Pump Islands	Wipe Lube Equipment
SUNDAY	
Sweep Floors Wipe Desks Clean Wash Bowl and Filter Wipe Lube Equipment Wash Drives	Wipe Off Pumps Police Drives and Grounds

(a) Filter, in this station, serves the purpose of a water cooler. (b) Pump islands are washed with soap, water and a brush except in cold weather when gasoline is used. (c) Police means pick up rubbish and dispose of it. (d) Pumps refers to gasoline pumps unless otherwise designated.

may be of help. The work, as can be seen, is divided into shifts, and as explained before, the day is divided into two shifts. One man starts to work at 1 o'clock in the afternoon and closes up that night, opens for business the following morning and is relieved again at 1 o'clock p.m.

Then he is off duty until the afternoon shift of the following day. This divides the odd jobs evenly (there being an odd number of days in a week). If a man works Monday morning this week he will work Monday afternoon next week. This arrangement equalizes the work by alternate distribution. One man is not doing any more work than the other nor any more of the objectionable chores.

All of the jobs scheduled are self-explantory to any one in the business. You will notice that cleaning the pumps is alternated so they are gone over once in the morning and the next time in the afternoon. This is so they will look their best during the daylight hours when they can best be seen. Where "Polish the Oil Pumps" is scheduled, they are wiped off thoroughly with gasoline, oiled and greased and then polished with automobile body polish. At other times they are merely wiped off with an oiled cloth.

The Pump Is Important

I might mention here that I consider a well-kept, smoothly operating set of gasoline pumps the best sales and advertising asset a station can have.

Where "Clean and re-arrange case goods" is required by the schedule, all of the case goods are wiped with an oiled cloth and re-arranged along the windows so as to make a pleasing display, and if possible arranged in a different way from what it was before.

Washing the window sills is done at this time so that the case goods need not be moved again. This saves the trouble of one handling of the case goods which would be necessary if the window sills were to be cleaned at some other time.

Policing drives and grounds consists of going over the whole premises and picking up all the debris that may have collected there, such as paper, rags, pieces of wood or any kind of rubbish

that might have fallen from a customer's trucks. Pump islands, when they are washed, are scrubbed with a stiff brush, using soap and water unless the temperature is so low that the water freezes. In extremely cold weather gasoline is used. Shoveling of snow is about the only unpleasant extra task that can not be divided equally among the men. It must be done promptly when it needs doing and there is no way to regulate its coming.

Set of Local Rules

In addition to the regular shift schedule there is a small list of rules to govern the general daily operation of the station. Most of them pertain to our own individual circumstances. However, there are three with a more or less general application that may be of interest:

1. "On the first and 15th of each month, and at the hour the shift changes and both men are on duty, they will lower the thief pump into each of the gasoline tanks and remove any water or dirt that may have accumulated there." This assures clean gasoline at the cost of a very few minutes of work every month.

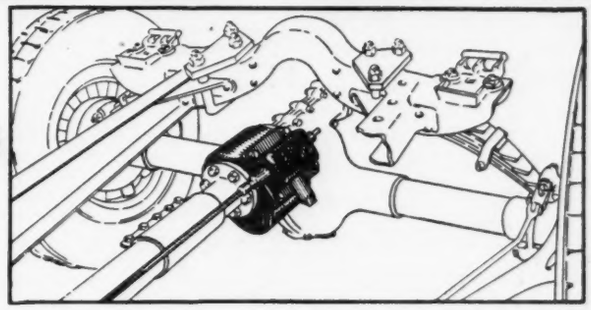
2. "On the 10th of each month at the change of shifts, both men will remove the screen from all the gasoline pumps, one at a time, and clean them thoroughly in lye water." This insures the smooth operation of the pumps which not only appears well to the customer but saves the energy of the men who have to operate them.

3. "Credit extended to anyone, beyond a single filling, (except to those on the regular credit list) will be done at your own risk. Should a truck come in for gasoline or oil, one which is not the property of a regular customer and from another part of town, be sure before giving the truck service that its owner does not have a contract with some other oil company. If so, do not give him credit but send him to the nearest station of the company from which he should buy."

This rule is made because, (aside from the ethical point involved) collecting frequently is a bother far greater than the compensation from the sale. A great deal of business is done on credit at our station with business firms in the immediate vicinity. Our particular specialty is giving service station service to owners of truck fleets. To make a collection for a small purchase from a firm in a remote part of town is a time killing matter and we find it more profitable to concentrate our effort on prospects and customers who can give us all, or the majority, of their business right here in the neighborhood.

We have observed that the constant good appearance of our station has resulted in an increase in transient business, a better regard for us on the part of our patrons and, lastly, a better feeling among our employees when their work is in pleasing surroundings with good equipment.

LIKE THE DRAIN RACK
THE FULLER
AUXILIARY TRANSMISSION
FOR FORD TRUCKS
HELPS YOU SPEED UP SERVICE



The drain rack has been a big factor in boosting oil profits. Compare the speed of servicing a car now with the old slow way of lying down and squirming under. The drain rack earns you money, because it speeds up service.

The FULLER Auxiliary Transmission also earns you money. It speeds up your trucking, because it adds to the planetary transmissions of your Ford Trucks the big advantages of sliding gear control.

The FULLER gives your trucks a speed for every road condition. Equipped with this unit they'll have the regular Ford high speed for level stretches—an intermediate speed for ordinary hills—the regular Ford low speed for steep hills, and in addition, a double low for the very bad places.

The FULLER adds 80% more pulling ability to the Ford Truck. With these units your trucks will make good time carrying heavy loads over bad roads. Your trucks will last longer, too, because the FULLER is scientifically designed to put the pulling stress on parts that are amply strong to carry it.

It will pay you to investigate the profit-making possibilities of the FULLER. Ask your Ford Dealer.

PRICE $67.50 INSTALLED

$5.00 Additional West of the Rockies.

FULLER & SONS MFG., Co.

KALAMAZOO MICHIGAN

TRANSMISSION BUILDERS FOR 22 YEARS

The Business of Oil Production

published by Johnson, Huntley and Somers, makes it possible for the beginner in the oil-producing business to obtain a working knowledge of the best methods and of their application.

The man who is experienced will find that it will answer practically any question that may arise on the business side of his enterprise.

The cost of this book is $3.50 and may be obtained by sending your check to—

National Petroleum News, 832 Caxton Bldg., Cleveland, O.

A complete source of supply for Jobbers

—the Tide Water Wholesale Marketing Department

NO matter where you are, Tide Water's Wholesale Marketing Department is at your service. This department is a complete source of supply for jobbers. We can supply you with *all* petroleum products. Our facilities also enable us to construct for you a motor oil to your own specifications, which you can market under your own brand name.

Get in touch with us before you buy elsewhere. We are continually in touch with the market—and can always get what you want. Our service is swift and dependable. Write, wire or phone us next time you want quotations or information.

We can supply you with any or all the following products:

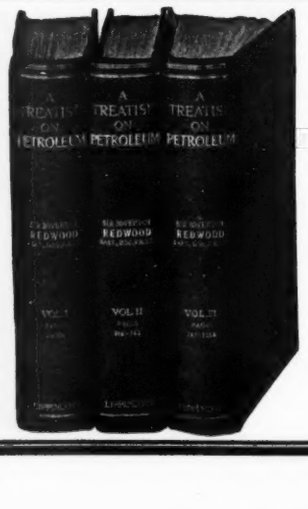
Gasoline
Lubricating Oils
Grease
Petrolatum
Kerosene
Furnace Oil
Wax
Fuel Oil
Cylinder Stocks
Neutrals

For direct shipment from Atlantic Seaboard, Pennsylvania, Mid-Continent and Texas Refineries.

TIDE WATER OIL COMPANY

Wholesale Marketing Department

11 Broadway, New York Phone: Whitehall 6020



Information on all branches of the petroleum industry is to be found in the 4th edition of A TREATISE ON PETROLEUM by Sir Boverton Redwood.

To obtain this valuable set make your check for $39 payable to

NATIONAL PETROLEUM NEWS
811 Caxton Bldg. Cleveland, Ohio

Use of Fuel Oil for Steam Raising Less

WASHINGTON, March 13.—Consumption of fuel oil by public utility plants, in 1925, according to figures collected by the department of the interior amounted to only 10,254,000 barrels, the figure being subject to revision, as compared with 16,630,000 in 1924, a loss of 38.3 per cent. The increasing use for other purposes, domestic heating, for instance, probably made public utility consumption decrease. The low price of steam coal also had its effect. The amount consumed is the smallest in seven years, the consumption in 1919 having been 11,050,000. Except in 1921 the consumption showed an increase each year from 1919 to 1925.

Consumption of fuel oil by railroad locomotives also fell off in 1925 in comparison with the preceding year, the Interstate Commerce Commission figures showing a reduction from 2,099,104,019 gallons in 1924 to 2,084,219,402 gallons in 1925.

Ten Persons Killed In Gasoline Accidents

By Special Correspondent

WASHINGTON, March 13.—In the year just past, 10 persons were killed and 15 injured as the result of gasoline explosions on the railroads of the country, says the annual report of the Bureau of Explosives of the American Railway Association, made public today. Five of the 10 who lost their lives and more than half of those injured suffered the penalty of unlawfully tampering with empty tank cars, generally for the purpose of stealing the gasoline left in the tanks because the unloading conditions were not such as to result in absolute cleaning of the cars of the content of gasoline and vapors. The association report called the acts "trespassers entering empty tank cars."

Two deaths resulted from crude oil accidents but a greater number resulted from benzol, accidents. As the cause of fatal accidents gasoline, as usual, stood first, benzol second and crude oil third in the list caused by inflammable liquids. Acids, inflammable liquids, compressed gases and poisonous liquids caused 13 deaths and 57 injuries.

The bureau boasted that the railroads, in 375,000 cars handled more than 500,000,000 pounds (250,000 tons) of commercial explosives, in the United States and Canada, without death or injury to any person.

Fireworks caused 26 accidents, 24 being caused by toy torpedoes. No persons were killed or injured by those accidents.

In the same year about 25,000 persons were killed and 500,000 were injured on streets and highways.

The tonnage of high explosives, 250,000, is less than 10,000 fully loaded

cars, an extremely small figure in comparison with the whole number of oil cars.

The bureau recognized the fact that lack of perspective on the part of readers might cause them to do injustice to inflammable liquids in comparison with dynamite, black powder and other commercial explosives of which fewer than 10,000 fully loaded cars were transported, the recognition being given in a paragraph reading as follows:

"Inflammable liquids (of which petroleum and its products constitute the bulk) cause the great bulk of trouble chargeable to dangerous commodities of all sorts. Undoubtedly a far greater tonnage of inflammable liquids, taken together, is hauled than of any other class of hazardous commodities and perhaps than all other classes put together. Next to gasoline, the heaviest damage is chargeable to benzol, while inflammable oil is third."

Underwriters "Lab" May Label Oil Burners

Staff Special

CHICAGO, March 13.—Underwriters' Laboratories of Chicago has under consideration the labeling of domestic oil burners. Many of the devices examined by the laboratories are given specific labels but some are not. Up to this time oil burners have not been labeled but each one listed as standard has been identified by some marking which was a part of the manufacturer's trade mark.

No official standards for construction of domestic oil burners have ever been drafted. The standards have been clearly enough defined but never have been considered official. Drafts of tentative standards have been made and copies of these are being mailed out this week from the Laboratories' office, 207 East Ohio St., Chicago, to oil burner manufacturers.

The builders of burners will be given an opporuntity to examine these tentative standards and have a voice in their adoption as official. Laboratories' authorities are calling a meeting of burner manufacturers to be held here on April 2, 1926, and the standards will be discussed openly and agreed upon in some manner before they are considered official for the industry.

The probability is that domestic oil burners will fall in two general classifications, the authorities think, those classifications being "Mechanical Draft" and "Atmospheric Draft" burners.

Fort Worth, March 13.—The Dependable Oil Co. has been organized at San Antonio by W. B. "Jack" Pape, former sales manager for Elliott Jones & Co., W. K. Campbell, H. B. May and Roy Wright. Offices have been opened in the Frost National Bank Bldg.

"ST. LOUIS" *Steel Barrels*

"ST. LOUIS" SERVICE

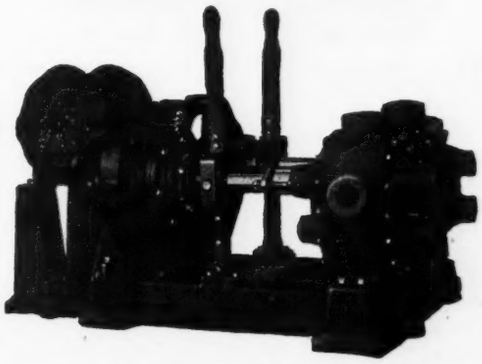
"ST. LOUIS" QUALITY

Two vital facts to consider when placing future business

ST. LOUIS STEEL PACKAGE CO.
Natural Bridge and Goodfellow
St. Louis, U.S.A.

TRAHERN ROTARY PUMPS

Strong
Durable



Efficient
Low
Priced

Double Unit Motor Drive

Built in Single, Double, Triple or Quadruple Units

For the Bulk Oil Station

The Trahern double unit gasoline and oil pump is especially adapted to the needs of the bulk station owner. Two 100 G. P. M. pumps mounted on a single bed plate together with the power unit and equipped with friction clutches, makes it possible to operate either one or both pumps at a time.

Write for catalog and prices

GEO. D. ROPER CORPORATION

ROCKFORD TRAHERN ILLINOIS.

HERE & THERE

National Petroleum News

T. V. Ruppert, who was formerly manager for the Sinclair Refining Co. at Fort Wayne, Ind., and later president of the Red Fox Petroleum Co., Fort Wayne, sold his interest in the latter company some time ago. Mr. Ruppert is now owner of the Republic Petroleum Co., Fort Wayne, and operates his own service station, which is equipped with four visible pumps, greasing and oiling service.

* * *

C. R. Vinton, who has been superintendent of the Depew, Okla., district of the Pure Oil Co., Columbus, O., was recently promoted to assistant to R. E. Andrew, general superintendent of production at Tulsa. E. L. McIntyre, who has been superintendent of the Healdton district, was transferred to Depew to succeed Mr. Vinton.

* * *

E. Bert Rentmeester, president of the Oconomowoc Oil Co., Oconomowoc, Wis., has returned to his office after a trip of several months through Canada, the western part of the United States and old Mexico. Mr. Rentmeester returned by way of Texas. The trip was made by automobile according to F. J. Porodek, secretary and treasurer.

* * *

C. H. Lockhart, superintendent of field operations for the Rio Grande Oil Co., Los Angeles, has moved his family to El Paso, Tex. from Los Angeles. Mr. Lockhart has charge of operations in Loving and Lee counties, Texas. The company is drilling a wildcat in Loving county, reports A. M. Lockhart, vice president.

* * *

J. Arthur Ehn, formerly sales manager for the Union Oil & Supply Co., Milwaukee, Wis., is now sales manager for Petroleum Products Corp., with headquarters at Milwaukee, according to E. M. Cassel, president. Mr. Ehn joined the latter organization on Feb. 1.

* * *

L. G. Reitzel, Beaver Falls, Pa., recently became agent for the Sinclair Refining Co. here. Carl Amick, special representative at Greensburg, Pa., for the Sinclair, has been transferred as agent to Reading, Pa.

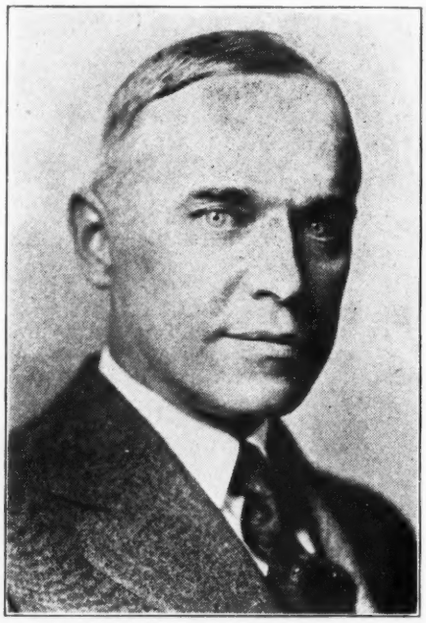
* * *

Roy Bishop, agent at Black Creek, Wis., for the Standard Oil Co. of Indiana, made good use of the time during bad weather by painting and overhauling his trucks.

* * *

H. L. McKeehan has been appointed divisional sales manager at Fort Worth, Tex. for the Transcontinental Oil Co., Tulsa, to succeed A. L. Adams, who recently died.

Frank Leonard, new service station attendant at Peabody, Kan., for the Standard Oil Co. of Indiana, Chicago, replaces M. J. Gilmer, who has been transferred to Potwin, Kan., to take charge of the bulk station for the Standard at that point.



R. H. Smith, president of the Oklahoma Co., Philadelphia, and experienced wildcatter who suggested to the Federal Oil Conservation Board at its open meeting in Washington, Feb. 10 and 11 that the government license wildcat operations.

A. A. Gerrabrant, of the export buying department of the Atlantic Refining Co., with headquarters in Philadelphia, spent Feb. 15 and 16 in Tulsa as guest of officials of the Tulsa branch of the Atlantic company. His visit was primarily one of pleasure. He went from Tulsa to Texas, however, on business for his company.

Junior Here and There

J. E. Roy, manager of the Raeoil Co., Potsdam, N. Y., is wearing a broad smile in celebration of the arrival of a 7½ pound son, Conrad Arthur, on Feb. 27, according to Cecil J. Strader, of Strader's Gas Station, Potsdam. Mrs. Roy is at her home at Malone, N. Y.

* * *

W. L. Bugbee, branch manager at Mason City, Ia., for the Hawkeye Oil Co., Waterloo, Ia., is the proud father of a 7½ pound girl, Betty Ruth.

Julian C. Hall, who has been with the Standard Oil Co. of Kentucky, Louisville, resigned on March 15, in order to take up duties as general manager and director of the Fidelity Oil Corp. and the Texas Fidelity Oil Corp. Offices will be opened at either Fort Worth, Dallas or Wichita Falls. Plans for reorganization of properties will be carried out later.

* * *

John Starbuck, supervisor of service stations at Battle Creek, Mich., for the National Refining Co., Cleveland, O., and Harry DeKalb, salesmen, were in an accident near Hillsdale, Mich., on Feb. 17. Mr. Starbuck escaped with a few bruises while Mr. DeKalb suffered a broken collar bone and three fractured ribs.

* * *

T. C. Snyder, senior member of the firm of T. C. Snyder & Son, Bloomsburg, Pa., service station operator, has been confined to his home by a heavy cold the past few days, but is now improving. The company distributes products of the Gulf Refining Co., according to H. C. Snyder, partner.

* * *

R. V. Van Horn, secretary and treasurer of the Independent Gas & Oil Supply Corp., Clifton Forge, Va., has left on the Apple Blossom special train sponsored by the Shenandoah Valley, Inc., for a 10 day trip to Florida, where he plans to boost his section of Virginia.

* * *

Van Lesley, agent at Wichita Falls, Tex. for The Texas Co., Houston, resigned on March 1 to go into the wholesale tire business. F. H. Kipps, formerly city salesman at Dallas for the company, succeeds Mr. Lesley as agent at Wichita Falls.

* * *

R. H. Cummins, in charge of the land department in Oklahoma of the White Eagle Oil & Refining Co., Kansas City, Mo. visited the Wichita, Kan. offices, after spending several weeks in the Texas Panhandle district.

* * *

L. C. Young, president of the Young Gasoline & Refining Co., Lexington, Ky., is at Pampa, Tex. where he is active in the new Panhandle development.

* * *

A. C. Smith, sales manager of the Great Southern Refining Co., Lexington, Ky., has returned from a business trip to Cleveland and Cincinnati, O.

* * *

H. L. Robinson, who was formerly with the W. H. Barber Co., Chicago is now special representative for The Jewett & Sowers Oil Co., Chicago.

AMSTERDAM Koninklijk Paleis

Solidity and Strength

AMSTERDAM is a city built upon a peat bog and divided into ninety islands by the intersection of numberless canals and rivers. It lies on the shore of the Zuider Zee and yet it is below the sea level.

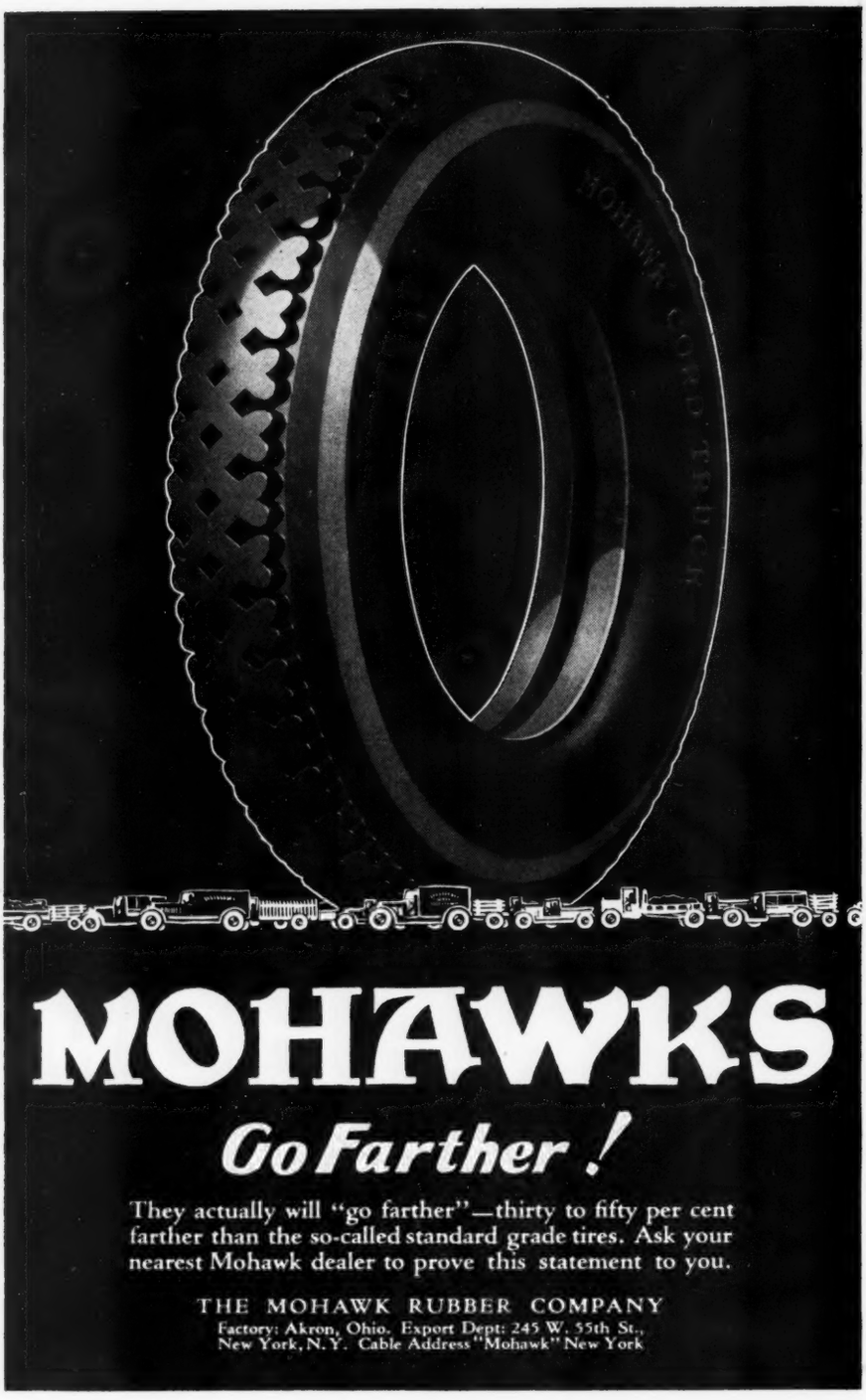
It is, therefore, a great credit to the Dutch builders that the royal palace and the other fine big buildings of the city stand firmly and solidly through generations. The explanation is that all buildings are supported on great piles driven down through fluid mud and sand to a foundation of firm clay sixty feet below.

Solidity is likewise the secret of strength in a business. The James B. Berry's Sons Company has traditions and beliefs which, like the piles of the old Palace in Amsterdam, go through the transitory and the unstable to a permanent foundation of honesty and fairness.

JAMES B. BERRY'S SONS COMPANY

PETROLEUM PRODUCTS

Oil City, Pa. Chicago New York Boston
Philadelphia Tulsa London, Eng. Hamburg, Germany Paris, France


MOHAWKS
Go Farther!
They actually will "go farther"—thirty to fifty per cent farther than the so-called standard grade tires. Ask your nearest Mohawk dealer to prove this statement to you.
THE MOHAWK RUBBER COMPANY
Factory: Akron, Ohio. Export Dept: 245 W. 55th St., New York, N.Y. Cable Address "Mohawk" New York

American Operating Methods

Are explained in a concise, practical way in OIL FIELD PRACTICE, by Dorsey Hager, petroleum geologist and engineer.

It is written for the business man, the oil field driller and operator, the geologist and the investor.

You may obtain this book containing 310 pages and 98 illustrations by mailing check for $3 to—

National Petroleum News

820 Caxton Building **Cleveland, Ohio**

Industrial Catalogues

B. P. Lientz & Co., engineers and manufacturers, 3409 E. 18th st., Kansas City, have just put out a catalog describing the Lientz flue gas recirculating system. The catalog shows pictures of installations of the Cross, Dubbs and Jenkins cracking units where it is installed and states that more than 40 cracking units and pipe stills are equipped with the system. A diagram in colors explains the company's claim that instead of 100 per cent fuel going into the furnace under the ordinary method of furnace operation, with the Lientz system, 56 per cent of fuel, 9 per cent of preheated air and 35 per cent of spent gases go in, thereby effecting a saving of 44 per cent in fuel. The Lientz system as it applies to the furnace of the Dubbs cracking unit and the air preheating device as it applies to ordinary still and boiler furnaces have been described in National Petroleum News.

The catalog is further illustrated with drawings showing designs of the system as adapted to various types of cracking equipment. The company has branch offices in New York and Los Angeles.

* * *

Continental Supply Co., St. Louis Mo,. is sending out to the trade two recent issues of inserts to its general catalog, to replace other divisions of the catalog which had become out of date.

One of recent issue covers regulating, measuring and burning equipment for natural gas and oil, and contains 23 pages. It is fully illustrated, and gives prices and weights of various articles coming under these classifications. These include regulators, gas meters, oil meters, gas lighting equipment, gas mixers and burners, and crude oil burners.

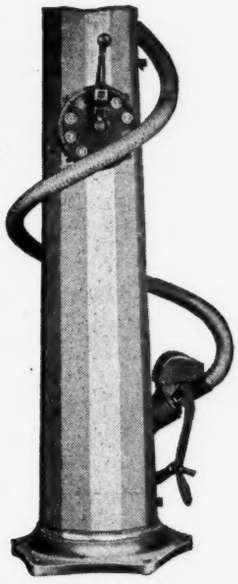
Another recent addition to the catalog, covers Instruments of Precision requiring 10 pages to describe and picture these articles. Among instruments shown are gauges of all kinds, testing outfits, thermometers, recording the mometers, hydrometers, and oil centrifuges.

* * *

The Duff Mfg. Co., Pittsburgh, Pa.— A leaflet on the new Duff self-lowering governor control jack which is the company's latest development in high-speed jack design embodying new features, has been published. The governor controls the lowering speed which insures safety. Some of the other features include a drop forged steel top, a key which prevents the turning of standard, a triple-pawl which prevents "sink-back," a lock which holds up the load and a stop at the base preventing over-tending of jack.

* * *

Republic Flow Meters Co., 2240 Diversey Parkway, Chicago.—A 16-page booklet devoted to the electrical metering of water has just been published. It illustrates and explains the construction features and operation of Republic water meters and gives a list of the users of these meters in various industries.



Showing hose locked in receptor for the night

The Customer Gets all!

The Visibowl has only one outlet,—the hose itself. Every ounce of liquid must go thru it, as there is no other way gasoline can possibly get out of the bowl,—***the customer gets it all.***

There is no secret drain valve that can be manipulated to divert part of the gasoline back to the storage tank. At night the nozzle is locked in the vapor-tight receptor, and the bowl drains itself thru the hose.

This National invention is approved and labeled by the Underwriters. It is one of the several new and distinctive developments that insure 100% fraud-proof delivery to all Visibowl customers.

Bulletin 130 tells all about it.

Made in 10-gallon size only.
Positive stop or eye-measurement.

NATIONAL RECORDING PUMP CO.
DAYTON, OHIO

NATIONAL
VISIBOWL

Gasoline and Oil Filling Stations

and Steel Buildings

We manufacture the simplest to the most elaborate Stations. Put your own individuality in your Filling Stations—Let us help you work this out.

The Edwards Manufacturing Co.

524-544 Eggleston Ave. **Cincinnati, Ohio**

Another Globe Victory

A Continuous-Duty Air-Cooled Compressor

In the Dependable and Popular Simplex Type.

THE ONLY AIR-COOLED COMPRESSOR ON THE MARKET WHICH CAN BE OPERATED CONTINUOUSLY AT HIGH PRESSURE

Built in 1, 2 and 3 H.P. sizes for large establishments

Write for catalog and be ready for spring business with—YOUR BEST ADVERTISEMENT—A GLOBE AIR COMPRESSOR.

Globe Manufacturing Co., Battle Creek, Mich.

Oil Patents Issued Recently

Production

Collapsible Drill Bit.—Walter L. Church, West Columbia, Tex. Filed Jan. 9, 1923. No. 1,571,931.

Trap for Oil-Well Pumps.—De Witt C. King, Fillmore, Calif. Filed Apr. 28, 1924. No. 1,572,022.

Casing Head.—William A. Trout and Charles R. Butler, Long Beach, Calif. assignors of one-third to Chester A. Rasmussen, Long Beach. Filed Apr. 11, 1922. No. 1,572,052.

Sucker-Rod Elevator.—Lewis F. Daivs, Santa Ana, Calif. Filed Sept. 3, 1925. No. 1,572,235.

Combination Sand Pump and Drill.—Samuel Roscoe Evans and Samuel Wilson Collins, Tulsa. Filed Aug. 18, 1924. No. 1,572,274.

Pumping Apparatus.—James W. Taylor, San Antonio, Tex. Filed Mar. 16, 1925. No. 1,572,329.

Pumping Apparatus.—James W. Taylor, San Antonio, Tex. Filed Mar. 16, 1925. No. 1,572,330.

Pumping Apparatus.—James W. Taylor, San Antonio, Tex. Filed Mar. 16, 1925. No. 1,572,331.

Pumping Apparatus.—James W. Taylor, San Antonio, Tex. Filed Mar. 16, 1925. No. 1,572,332.

Pumping Apparatus.—James W. Taylor, San Antanio, Tex. Filed Mar. 16, 1925. No. 1,572,333.

Rotary-Core Drill Bit.—John R. Chamberlin, Bronxville, N. Y. Filed June 19, 1922. No. 1,572,349.

Rotary Drill Bit.—Leroy G. Gates, Bakersfield, Calif. Filed July 16, 1923. No. 1,572,386.

Spring-Well-Casing Hook.—Lester H. Keim, Pasadena, Calif. Filed Feb. 18, 1925. No. 1,572,390.

Casing Head.—Nicolaj Peter Krebs, Brea, Calif. Filed Apr. 24, 1923. No. 1,572,394.

Fishing Tool.—Richard A. Magor, and Walter Stone, Long Beach, Calif. Filed Nov. 20, 1924. No. 1,572,615.

Elevator of the Rigid-Yoke Type.—Ruel E. Mohnkern, Oil City, Pa. Filed May 24, 1923. No. 1,572,616.

Pump for Oil Wells.—Harry L. Nolan, Maplewood, Mo. Filed Jan. 17, 1921. No. 1,572,618.

Crown-Block String Weigher.—Walter H. Hazlett, Long Beach, Calif. assignor of one-half to Vane M. Stedman, Whittier, Calif. Filed July 23, 1925. No. 1,572,719.

Oil-Well Sand Cleaner.—James B. Clark, Midwest, Wyo. Filed Nov. 19, 1924. No. 1,572,769.

Refining

Process of Separating Wax from Mineral Oil Distillates.—Selden H. Hall, Poughkeepsie, N. Y. and Cyrus Howard Hapgood, Nutley, N. J., assignors to The De Laval Separator Co., N. Y. Filed Sept. 8, 1921. No. 1,571,943.

Process for the Constructive Conversion of Hydrocarbons.—Harold R. Berry, Brooklyn, N. Y. Filed Sept. 18, 1922. No. 1,571,994.

Apparatus for the Production of Gasoline.—Frank Tinker, Sutton Coldfield, England. Filed June 7, 1923. No. 1,572,626.

Apparatus for Transforming and Distilling Hydrocarbons and the Like.—Adolphe Antoine Francois Marius Seigle, Paris, France. Filed July 16, 1920. No. 1,572,691.

Swivel Swab.—Harvey R. Standlee, Tulsa, Okla. Filed Aug. 17, 1922. No. 1,573,585.

Fishing Tool.—Charles Schiefferle, Los Angeles, and Julius Schiefferle, Inglewood, Cal. Filed July 9, 1925. No. 1,573,646.

Paraffin Cleaner.—Arthur Smith Crosby Marland, Okla., assignor of two-thirds to American Iron & Machine Works, Inc., Tonkawa, Okla. Filed Sept. 30, 1924. No. 1,573,679.

Miscellaneous

Filling Device for Filling Tanks.—Wilfred H. Stephenson, San Antonio, Tex. Filed Dec. 9, 1924. No. 1,572,049.

Process and Apparatus for Boiling Carbon Black.—Walter C. Cassell and Carl K. Springfield Breckenridge, Tex., assignors of one-half to The Texas Carbon Industries, Inc., Breckenridge, Tex. Filed June 27, 1925. No. 1,573,373.

Industrial Notes

Alfred Butcher, for the past 15 years a mechanical and combustion engineer, specializing in furnace design for using oil, gas, powdered and combination fuels, has entered the consulting engineer field with a temporary office at 20 Roselle Av., Roselle Park, N. J.

Mr. Butcher was connected with the Gulf Refining Co. at Port Arthur and Bayonne plants both in an operating and technical capacity for a number of years, and also was with the Atlantic Refining Co. for several years as general efficiency engineer.

While he was with the New England Oil Refining Co. he increased the efficiency of many of the New England textile mills by converting them from coal to oil, furnishing special designs for the changes to be made in the plant steam installations. Mr. Butcher has introduced a steam oil burner, one of the features of which is that it can atomize one pound of oil for each 14/100 of a pound of steam used. This burner is able to handle refinery tars containing as much as 40 per cent coke without gumming up. He has also designed and applied a high pressure gas burner which is said to be noteworthy for its simplicity and efficiency.

* * *

The Superheater Co., New York and Chicago, has elected M. Schiller, vice president in charge of accounts and purchases, and W. F. Jetter, treasurer and assistant secretary. Bard Browne was appointed assistant to Mr. Schiller in charge of sales and service, and T. F. Morris, assistant secretary and assistant treasurer.

Mr. Schiller has been with the company since 1910 when it was organized as the Locomotive Superheater Co. Mr. Browne joined the company in 1914 and has been engaged in the application of locomotive superheaters and feedwater heating devices.

* * *

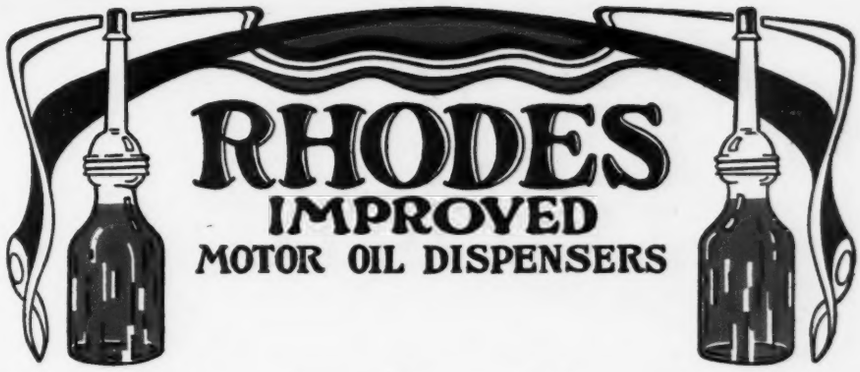
Worthington Pump & Machinery Corp., has received an order from The United Fuel Gas Co., Charleston, W. Va. for four 22-inch by 36-inch twin tandem double-acting gas engines and for three same size single gas engines. All seven engines will be arranged for gas compressor drive.

* * *

The Youngstown Boiler & Tank Co., Youngstown, O., has moved its Detroit, Mich. offices from the Book Bldg. to 6533 Hamilton Ave., according to L. B. Beck, district sales manager.

* * *

Correct Measure Co., Rochester, Pa., manufacturer of gasoline pumps, has appointed Harry R. Bromley, of Bromley-Meyers Co., Pittsburgh, Pa., as district sales manager in western Pennsylvania, eastern Ohio and northwestern West Virginia.



Why Make Oil Your *Silent* Partner?

In selling filling station products, the big profit-maker, motor oil, often is kept the *silent* partner.

The presence of gasoline is blazoned from pumps flooded in light. Greases and heavy lubricants are displayed in brilliantly lettered cans. But what about motor oil?

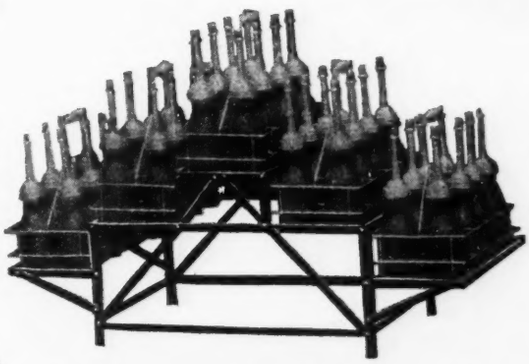
They Show the Oil

Rhodes Improved Motor Oil Dispensers with their perfect visibility, give oil high display value. Alongside your gas pumps, three or five trays of Rhodes Dispensers on a Rhodes Motor Oil Display Rack present an appearance of business-like uniformity and are a constant reminder to buy oil.

The prefilling feature of Rhodes Dispensers suggests service without delay and the accuracy and cleanliness of this service appeal to motorists.

Use Rhodes Oil-Selling Equipment in your stations and make that silent partner speak for himself.

Rhodes Motor Oil Display Racks also made in 3 Tray size.



Dispenser Sets and Display Racks are priced separately. Write us for prices.

JAY B·RHODES Co.
KALAMAZOO, MICHIGAN.

THE GEOLOGY OF PETROLEUM

is the name of the book written by William H. Emmons, which goes into detail describing the more important fields such as the Appalachian, Lima-Indiana, Illinois, Mid-Continent, Gulf Coast of Texas and Louisiana, Rocky Mountain, Canadian, Mexican and foreign fields.

It contains 610 pages, with 254 maps and illustrations, and may be purchased for $6 from—

National Petroleum News
824 Caxton Building **Cleveland, Ohio**

NIAGARA METERS
Your Service Station will be the better for these Meters
ACCURATE, quick measurement to your customers and reliable checks on total sales bring added business and profits. You will be well surprised at the dividends returned by your investment in Niagara Meters.
Whether you operate a refinery, bulk or retail station, we have your size and model of meter. Write us for more information and catalog.
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2889 Main St. Buffalo, N.Y.

REFINING

Reliable information on every phase of modern American refinery practice is to be found in the book prepared by H. S. Bell, and called AMERICAN PETROLEUM REFINING.

Some of the chapter headings are: Refinery Site and General Arrangement; Stills; Cracking; Cold Settling; Compounding; Storage of Oil; Bulk Transportation; and Fire Protection.

The cost of AMERICAN PETROLEUM REFINING is only $5. Just mail your check today to—

National Petroleum News

833 Caxton Building **Cleveland, Ohio**

New Oil Station Construction

Stanley, N. D.—R. F. Wherland has purchased the Home Oil Bulk Station at Williston, N. D., and will erect a service station soon. Mr. Wherland will also purchase unloading equipment and gasoline pumps. He is distributor of Texaco products.

Atlanta, Ga.—Pan-American Petroleum Co., with southern headquarters at Atlanta, is planning to build 125 bulk stations in Mississippi during 1926, according to reports.

Liberty, N. Y.—Ben Gerow is building several service stations on highways leading out of Liberty. Mr. Gerow distributes Sinclair Refining Co.'s products.

Clifton Forge, Va.—Independent Gas & Oil Supply Corp. has bought property at Clifton Dale Park for filling station.

Wichita Falls, Tex.—The Texas Co. Houston, is building service station.

Tishomingo, Okla.—J. B. Hutchens to erect filling station and grocery store.

Sturgeon Bay, Wis.—P. M. Peterson Oil Co. plans to erect filling station.

Batesville, Ark.—Standard Oil Co. of Louisiana building service station.

Alliance, Neb.—Standard Oil Co. of Nebraska will build filling station.

Ishpeming, Mich.—Standard Oil Co. of Indiana to erect service station.

Council Bluffs, Ia.—Collins Oil Co. purchased site for filling station.

Chickasha, Okla.—Clarence Laflin purchased site for filling station.

Manhattan, Kan.—M. M. Barry to erect filling station and garage.

Burlington, Ia.—The Davies Oil Co. is building filling station here.

Overton, Neb.—Ora Poulson purchased site for filling station.

Indianapolis, Ind.—Plaza Oil Co. is building service station here.

Grand Island, Neb.—A. Richards purchased lot for filling station.

Atlantic, Ia.—Brady McClellan to open filling station here.

Sidney, Mont.—Hughes Oil Co. erecting filling station.

Canton, Mo.—Sinclair Refining Co. to build filling station.

ON THE LAZY BENCH

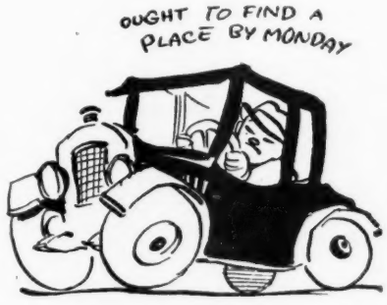
National Petroleum News

Nothing is Certain

A group of big business men in Washington were talking one evening about government taxation.

"There is no telling where we will land by the time the tax bill is settled," said one. "Our status is as uncertain as that of an old negro slave I once heard of. Somebody asked him whom he belonged to. 'I don' know, suh,' he replied. 'Ol' Marse he's upstairs playin' pokah'."

❦ ❦ ❦



Tom: "Say, I nearly broke the long distance non-stop auto driving record."

"Trying to work up a little notoriety, eh?"

Tom: "No, I was hunting a place to park."

—The Unloading Rack

❦ ❦ ❦

Poor Fish

A man sat down at a table in a cafe recently and looking up at the breezy waitress he said complacently: "Do you serve fish here?"

"Oh, yes," she replied, "they come in occasionally."

❦ ❦ ❦

A Chance

"Now, tell us about it—why did you steal the purse?"

"Your Honor, I won't deceive you—I was ill and thought the change might do me good."

❦ ❦ ❦

Some Bird!

Student: "And poor Harry was killed by a revolving crane."

Englishwoman: "My word! What fierce birds you have in America."

❦ ❦ ❦

Extra Dry

Teacher—Use the right verb in this sentence: "The toast was drank in silence."

Pupil—The toast was ate in silence.

His Nom De Guerre

The man who is taking statistics for the new city directory approaches a movers home in the suburb. At the doorway stands a stout, determined-looking lady.

"Madam," he says, "my call is official. I am compiling statistics on the inhabitants in this part of the city. Might I ask what your name is?"

"Duffy—Honoria Duffy."

"And your husband's name?"

"Naturally, it's the same as me own—Duffy."

"I mean his full name."

"Well, when he's full he thinks it's Jack Dempsey, but when I lay me hands on him it's still Duffy."

❦ ❦ ❦

Taking No Chances

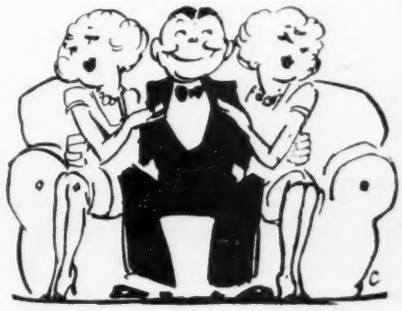
The junior partner was interviewing a very pretty girl who had applied for a position. The senior partner came in, and, after inspecting the vision, called the other member of the firm aside and whispered: "I'd hire her."

"I have."

"Can she take dictation?'

"We'll find that out later," said the junior partner. "I didn't want any obstacles to crop up."

❦ ❦ ❦



WHY NOT?

She—"Do you think a man can love two women at the same time?"

Him (gallantly)—"Yes, if they were both like you."

—Liverpool Echo (England).

❦ ❦ ❦

He's Not The Only One

Lounge: "Ever been pinched for speeding?"

King: "No, but I've been slapped for going too fast."

❦ ❦ ❦

Irate Guest—Look here, the rain is simply pouring through the roof of my bedroom.

Proprietor—Zat accords with our prospectus—running water in every room.

ALL-IN-1 FOLIO

Net $21.60

Closed, 301 is a handsome Portfolio of selected, 5 oz., black cowhide. Open however, it is an efficient, attractive Display Case, containing 18 four ounce cut-bottom bottles with metal capped corks, and 6 one ounce squat grease jars. There are no trays to lift out, no metal clips to break the bottles. The flaps are lined with washable Keratol, and the samples backed against red plush. There is also an ample pocket for order book and literature. Satisfaction is guaranteed. Your name embossed in gold *free*.

Other Styles in our FREE Catalog

L-U-C-E

Builders of Sales Luggage

614 Delaware KANSAS CITY, MO.

Patent Pending

Cleanliness

Were you ever cussed for spilling oil over the engine and fenders of a car? Our dispenser will deliver oil in a clean way. No muss on the car or your person.

Further, you are assured of clean oil because the caps covering each spout keep out dust and dirt. The motorist does not care to buy dirty oil. Protect yourself and customers by investigating our equipment.

Full information upon request

WM. Neil & Co.

617 W. Division St. Chicago, Ill.

SINCLAIR OILS

WHETHER you want a light, free-flowing oil for a delicate machine—or a heavy, sturdy oil for a ponderous mechanical giant, you will find it in the grades of oils marketed under this Sinclair Trade Mark. You will find it in exactly the quality you require, at the right price always.

SINCLAIR REFINING COMPANY

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Sinclair Oil Bldg., 45 Nassau St.
Telephone: Rector 9320

CHICAGO
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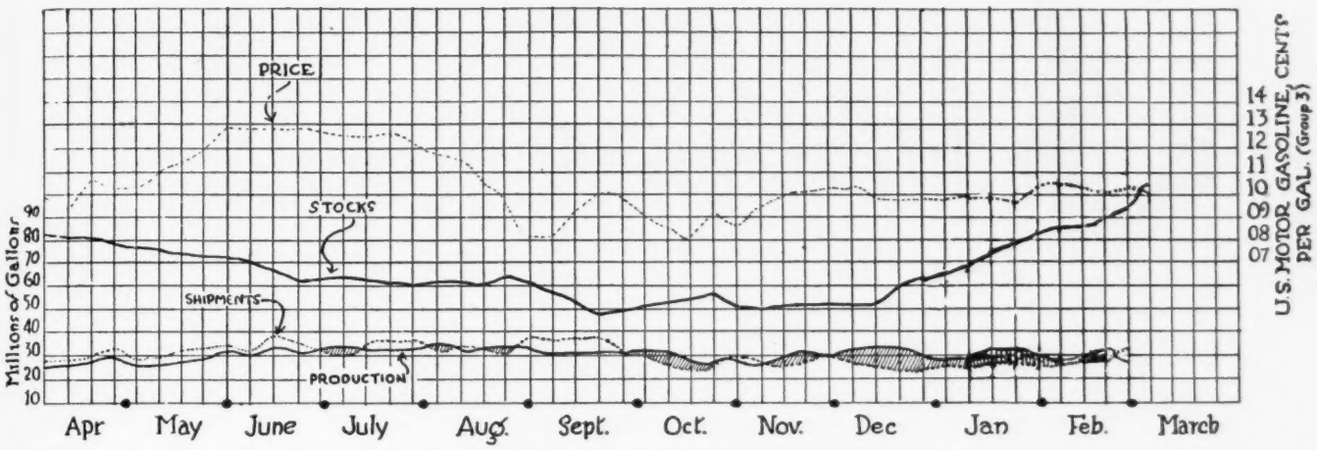
SINCLAIR OILS

REG U.S. PAT. OFF.

Refinery - Tank Wagon Markets

National Petroleum News

Barometer of the Mid-Continent Gasoline Market



Relation of the Group Three price of U. S. Motor Gasoline to Production, Shipments and Stocks of Gasoline at the 124 Mid-Continent plants reporting their figures weekly to National Petroleum News.

Break in Mid-Continent Gasoline Market Costly for Refiners

Staff Special

TULSA, March 15

THE Mid-Continent gasoline market broke sharply the past week after weathering the usual dull month of February and the first week of March in fair fashion.

As a result, refiners are facing a serious situation. They now are receiving approximately the same prices for their gasolines as were received just prior to the crude and tank wagon increases around the first of February, yet are forced to pay 25 cents a barrel more for their crude oil. Even the "paper loss" has disappeared for many, and they find themselves running at a real monetary loss.

With gasoline stocks at the 124 Mid-Continent plants reporting to National Petroleum News nearing the 100,000,000 gallon mark, and no inkling of increased demand in sight, there appears to be a general move on the part of refiners toward the only way left open for them—drastic reductions in crude charges to stills.

This move was first noticeable in the reports for the week ending March 5, when the 124 refiners cut their crude charges approximately 22,000 barrels a day for that week. That the plan is gaining adherents is evidenced in part by the fact that the market displayed a better undertone Saturday after the soft week. Refiners apparently are more determined than ever to keep their losses at a minimum even if they have to reduce their production for the next 30 days.

Heavy Oils Shady

Heavy oils, meanwhile, have remained steady to firm. Higher gravity fuel oils, distillates and gas oil are still in good demand, principally because of their scarcity, while kerosenes in Oklahoma became freer but held firm in other areas

Natural gasoline manufacturers, too, are finding themselves in the same boat with the refiners, their products coming out steadily and no demand to take care of them.

A part of the break in the market probably can be traced to the psychological reaction to the reduction in the price of Pennsylvania crude oil last Monday. Some refiners expressed the opinion that the cut probably was caused by a pipeline controversy, while others took the view that the oil is backing up in the lines since refiners were not taking their usual quotas, and the cut was made to stimulate movement. Whatever the cause, however, there is no doubt the cut had some effect on the Mid-Continent markets, because quotations were reduced immediately after the decrease was announced.

Another factor which may have had a bearing on the market is the fact that one of the larger refineries offered out 100 cars of U. S. Motor gasoline at 9¼ cents per gallon. This offer was met by others.

On the other hand, California crude and tank wagon increases of Thursday apparently failed to strike a responsive chord, as would naturally be supposed. Several persons tried to find a ray of optimism by declaring that less California gasoline would find its way to the Atlantic seaboard, which would result in buyers in the east turning more to the Mid-Continent. Others pointed out, however, that with the large amount of gasoline in storage, it was doubtful if buyers would have to seek any farther than the Atlantic seaboard for some time unless an unexpected demand sprung up. As for the Continental Oil Co.'s gasoline advances in Idaho and Utah Friday, no effect probably will be felt in this area.

More Gasoline Obtained

With further reference to the move toward reduction of crude charges to stills, practically the same amount of crude is being run at present as was being consumed at this time last year, yet it must be borne in mind that more gasoline per barrel of crude is being obtained this year since so many cracking units have been installed within the past 12 months.

Shipments, on the other hand, are just about the same as last year at this time, at least, not sufficiently larger to take care of that increased gasoline production, and refiners are finding figures of former years of little avail in determining just what they should do.

Opinions vary as to the prospects for the remainder of the month. A few refiners say a turn upward is certain to

(Continued on page 125)

Dependable Source of Supply

From the Oil Well to the Jobber

Barnsdall has

3 *Modern Refineries*

BE SQUARE PRODUCTS

WICHITA, KANSAS

BARNSDALL, OKLA.

OKMULGEE, OKLA.

THE crude oil to these refineries is transported through our own system of pipe lines thus assuring our customers of a dependable source of supply as well as uniform quality.

We manufacture High Grade Lubricating Oils.

Wire, write or telephone

Barnsdall Refineries, Inc.

Subsidiary Barnsdall Corporation

EXECUTIVE OFFICES
Petroleum Building
Tulsa, Okla.

GENERAL SALES OFFICES
624 S. Michigan Ave.
Chicago, Ill.

New York, Pittsburgh, St. Louis, Kansas City, Omaha, St. Paul, Des Moines, Los Angeles, Wichita

From the Oil Well to the Jobber

Dependable Source of Supply

Refinery Markets on Light Oils and Lubricants

Pennsylvania, Oklahoma, North and South Texas, Louisiana, Arkansas, California

GASOLINE AND NAPHTHA

PENNSYLVANIA	Prices Mar. 15	Prices Mar. 8	Prices Mar. 1
52-54 Naphtha	11½-12	11¾-12	11½-12
54-56 Naphtha	12 -12¼	12 -12¼	12 -12¼
58-60 Gasoline	12¼-12½	12¼-12¾	12½-12¾
60-62 Straight-run gasoline	13½-13¾	13½-14	13¾-14
62-64 Straight-run gasoline	-....	14 -14½	14 -14½
64-66 Straight-run gasoline	14 -14¾	14½-15	14½-14¾
68-70 Straight-run gas. 350-360 E.P.	15½-16	15½-16	15½-16
68-70 Straight-run gas. 305-320 E.P.	19 -20	19 -20	-20
70-72 Straight-run gas. 300-305 E.P.	.....	-21	-21
OKLAHOMA			
48-50 450 E. P. naphtha	9 - 9¼	9¼- 9¼	9¼- 9¼
50-52 450 E. P. naphtha	9 - 9¼	9¼- 9¼	9¼- 9¼
56-58 450 E. P. gasoline	9¼- 9½	- 9½	9½- 9¾
56-58 U. S. Motor gasoline	9½- 9¾	9¾- 9¾	9¾- 9¾
58-60 U. S. Motor 437 E. P.	9¾ -10	-10	10 -10¼
60-62 400 E. P. gasoline	-11	11¼-11½	11½-11¾
64-66 390 E. P. gasoline	-11½	-12	12 -12¼
64-66 375 E. P. gasoline	11¾-12	12¼-12½	12½-12¾
68-70 350-360 E. P. gasoline	-12¾	13 -13¼	13¼-13½
64-66 437 E. P. blend	- 9½	9¾-10	-10
KANSAS*			
58-60 U. S. Motor gasoline	10¼-10½	-10½	-10½
60-62 400 E. P. gasoline	-11¼	-12	12 -12¼
64-66 375 E. P. gasoline	-12¼	-13	-13

*F. O. B. refinery, Kansas destination.

NORTH TEXAS			
48-52 450 E. P. naphtha	- 9	9 - 9¼	9 - 9¼
56-58 450 E. P. gasoline	9¼- 9¾	- 9¾	9¼- 9¾
58-60 450 E. P. gasoline	- 9½	9½- 9¾	9½- 9¾
56-58 U. S. Motor gasoline	9½- 9¾	- 9¾	9½- 9¾
58-60 U. S. Motor gasoline	9¾- 9¾	9¾-10	9¾-10
64-66 390 E. P. gasoline	11½-11¾	12¾-13	12 -12½
64-66 375 E. P. gasoline	12 -12¼	12¼-12½	12½-12¾
68-70 350-360 E. P. gasoline	12¼-12¾	-13	-13
NORTH LOUISIANA			
58-60 U. S. Motor 437 E. P.	-10	-10¼	10¼-10½
ARKANSAS			
58-60 450 E. P. gasoline	- 9½	9¾-10	9¾-10
58-60 U. S. Motor gasoline	-10	-10¼	10¼-10½
64-66 375 E. P. gasoline	12 -12¼	12½-12¾	12¾-13¼
CALIFORNIA			
54-56 U. S. Motor gasoline	-13	-11	-11
42-45 Engine distillate, 445-480 E.P.	10 -11	8 - 9	8 - 9

Note: This is without the 2-cent state tax included in the price of California refiners for shipments within the state.

NEW ENGLAND (F. O. B. Boston and Fall River)			
U. S. Motor gasoline	-13¼	13 -13½	13 -13¾

NATURAL GASOLINE

(Note: End point of all grades, not over 375° F.)

OKLAHOMA			
Grade Double A	9 - 9¼	9¼- 9¾	9½- 9¾
Grade A	9 - 9¼	9½- 9¾	9½- 9¾
Grade Double B	8¼- 8½	8¾- 9	8¾- 9
Grade B	8¼- 8½	8¾- 9	8¾- 9
Grade C	- 8¼	- 8¾	8¾- 9

NOTE—Specifications adopted by Ass'n of Nat. Gaso. Manufacturers
Grade Double A—80-87.9 gravity, 90% recovery, not over 375 E. P.
Grade A—72-79.9 gravity, 90% recovery, not over 375 E. P.
Grade Double B—84-92 gravity, 85% recovery, not over 375 E. P.
Grade B—76-83.9 gravity, 85% recovery, not over 375 E. P.
Grade C—80-90 gravity, 78% recovery, not over 375 E. P.

NORTH LOUISIANA			
*Grade Double A	10 -10¼	10½-10¾	10½-10¾
*Grade Double B	- 9	9½- 9¾	9½- 9¾
*Grade C	- 9	- 9¼	- 9¼

*F. O. B. Monroe District.

NORTH TEXAS			
*Grade Double A	9 - 9¼	- 9¾	9¾-10
*Grade A	9 - 9¼	- 9¾	9¾-10
*Grade Double B	8½- 8¾	- 9	- 9
*Grade B	8½- 8¾	- 9	- 9
*Grade C	- 8¼	- 8¾	8¾- 9

*F. O. B. Breckenridge.

CALIFORNIA			
78-84° 375 E. P.	15 -15½	15 -15½	15 -15½
PENNSYLVANIA			
68-70 Grav. 437 E. P.	12½-13	12½-13	13 -13¼
64-66 Grav. 437 E. P.	12½-13	12½-13	13 -13¼
60-62 Grav. 437 E. P.	12½-13	12½-13	12¾-13¼
68-70 Grav. 420 E. P.	13¼-13½	13¼-13½	13½-14

BURNING OILS

PENNSYLVANIA			
45 Water White Kerosene	8½- 9	8½- 8¾	8½- 8¾
46 Water White Kerosene	9 - 9¼	9¼- 9½	9¼- 9½
47 Water White Kerosene	-10	10 -10¼	-10
300 Burning Oil	- 8½	- 8½	- 8½
OKLAHOMA			
41-43 Water White Kerosene	6¾- 6¾	6¾- 6¾	6¾- 6¾
42-44 Water White Kerosene	7⅛- 7¼	7⅛- 7¼	7 - 7¼
KANSAS			
41-43 w. w. kerosene	7⅛- 7½	- 7⅛	- 7½
42-44 w. w. kerosene	- 7¼	.....	- 7¼

NORTH TEXAS	Prices Mar. 15	Prices Mar. 8	Prices Mar. 1
41-43 Water White Kerosene	6¾- 7	6¾- 7	6¾- 6¾
42-44 Water White Kerosene	.....	- 7½	- 7½
NORTH LOUISIANA			
41-43 Water White Kerosene	7½- 7¾	- 7½	7¾- 7½
ARKANSAS			
41-43 Water White Kerosene	- 7½	- 7½	7 - 7½
CALIFORNIA			
38-40 Water White Kerosene	6 - 7	5 - 5½	5 - 5½
NEW ENGLAND			
*40-43 Water White Kerosene	- 9½	- 9½	.....

NEUTRAL OIL

PENNSYLVANIA (Viscosity at 70° F.)			
220 Vis. No. 3 Assoc. Filt.		-30	-29½
200 Vis. No. 3 Assoc. Filt.	27¾-28	27¾-28	27 -27½
180 Vis. No. 3 Assoc. Filt.	25½-26	25½-26	25 -25½
150 Vis. No. 3 Assoc. Filt.	21½-22	21½-22½	21 -21½
(Non-Viscous)			
34 Grav. 350-360 Flash	7½- 8½	- 8½	8½- 8¾
36 Miners Neutrals 300-305 Flash	7¼- 7¾	7½- 7¾	- 7¾
OKLAHOMA (Viscosity at 100° F.)			
100 Vis. No. 2 color	6¾- 7½	7 - 7½	7 - 7½
150 Vis. No. 3 color	10 -11	10 -11	10 -11
150 Vis. No. 4 color	9½- 9¾	9¾- 9¾	- 9¾
180 Vis. No. 3 color	10 -10¾	10 -10¾	10 -10¾
180 Vis. No. 4 color	10½-11	10½-11	10½-11
180 Vis. No. 5 color	9 -10¼	9 -10¼	9 -10¼
200 Vis. No. 3 color	11 -11½	11 -12	11 -12
200 Vis. No. 4 color	11¼-11½	11¼-11½	-11½
200 Vis. No. 5 color	9½-11¼	10 -11¼	10 -11¼
220 Vis. No. 3 color	12 -12¾	12¼-12¾	12½-12¾
220 Vis. No. 4 color	13 -13¾	13 -13¾	13 -13¾
220 Vis. No. 5 color	12½-12¾	12½-12¾	-12¾
240 Vis. No. 3 color	14 -15	14¼-15	14¾-15
240 Vis. No. 4 color	14¼-14¾	14¼-14¾	-14¾
240 Vis. No. 5 color	13¾ 14	13¾-14	-14
280 Vis. No. 3 color	15¼-17	15¼-17	15¾-17
280 Vis. No. 4 color	16¼-16¾	16¼-16¾	-16¾
280 Vis. No. 5 color	15¾-16	15¾-16	-16
300 Vis. No. 5-6 color	17 -18½	17 -18½	17 -18½
GULF COASTAL (Viscosity at 100°F; cold test 0)			
100 Vis. No. 2 Color Unfilt. Pale	7½- 8	7½- 8	7½- 8
200 Vis. No. 3 Color Unfilt. Pale	11½-12	11½-12	11½-12
300 Vis. No. 3 Color Unfilt. Pale	13½-14	13½-14	13½-14
500 Vis. No. 3½ Color Unfilt. Pale	15½-16	15½-16	15½-16
750 Vis. No. 4 Color Unfilt. Pale	19 -19½	19 -19½	19½-20½
200 Vis. No. 5½ Color Red Oil	9½-10	9½-10	10 -10½
300 Vis. No. 5½ Color Red Oil	11½-12	11½-12	12 -12½
500 Vis. No. 6 Color Red Oil	13 -13½	13 -13½	13½-14
750 Vis. No. 6 Color Red Oil	18 -18½	18 -18½	18 -18½
CALIFORNIA (Viscosity at 100° F.)			
100 Vis. No. 2 color	11 -11½	11 -11½	11 -11½
100 Vis. No. 3 color	8½- 9	8½- 9	8½- 9
200 Vis. No. 3 color	13½-14	13½-14	13½-14
300 Vis. No. 3 color	15 -15½	15 -15½	15 -15½
450 Vis. No. 3½ color	18 -18½	18 -18½	18 -18½
550 Vis. No. 3 color	20 -21	20 -21	20 -21
600 Vis. No. 3½ color	21 -22	21 -22	21 -22
100 Vis. No. 5 color	7 - 7½	7 - 7½	7 - 7½
200 Vis. No. 5 color	12 -12½	12 -12½	12 -12½
300 Vis. No. 5 color	13 -13½	13 -13½	13 -13½
400 Vis. No. 5 color	15 -16	15 -16	15 -16
500 Vis. No. 5 color	16 -17	16 -17	16 -17
600 Vis. No. 6 color	17 -18	17 -18	17 -18
700 Vis. No. 7 color	18 -19	18 -19	18 -19

CYLINDER STOCKS

OKLAHOMA			
190-200 Vis. at 210° Bright Stock	31 -35	31 -35	31 -35
150-160 Vis. at 210° Bright Stock	28 -31	28 -31	28 -31
600 E Stock, 140-150 Vis. @ 210°	18 -20	18 -20	18 -20
600 Steam Refined Olive Green	8½-11½	8½-11½	9 -11½
600 Steam Refined Dark Green	6½- 8	6½- 8	6½- 8
Black Oil	- 5	- 5	- 5
PENNSYLVANIA (1-inch Immersion Test)			
600 Steam Refined	16½ 18½	16 -17	16½-19
635 Steam Refined	.....	20 -21	21 -21½
650 Steam Refined	21½ 22	22 -23	23 -24
600 Flash	24 -25	24 -25	26 -27
625 Flash Steam Refined	-35	-35	-36
600 Warren E	21 22	21½-22	21½-22½
600 Oil City E	20½-21	20½-21	-20½
600 Filtered D	27 -28	26½-27½	27 -28
Cold Test Stocks (bright filtered)	37 -38½	37½-38½	38½-39
Cold Test Stock (dark filtered)	35 -36½	35½-36½	36½-37
Black Oil		8 - 8½	- 8

(Note—Prices of total immersion test goods average 1 to 3 cents per gallon higher.)

Above prices are f. o. b. refinery in tank car. They are the prices at which the bulk of the products on the open market move. Whoever has knowledge of any open market prices on any considerable quantity of goods differing from the foregoing, will favor us with this information.

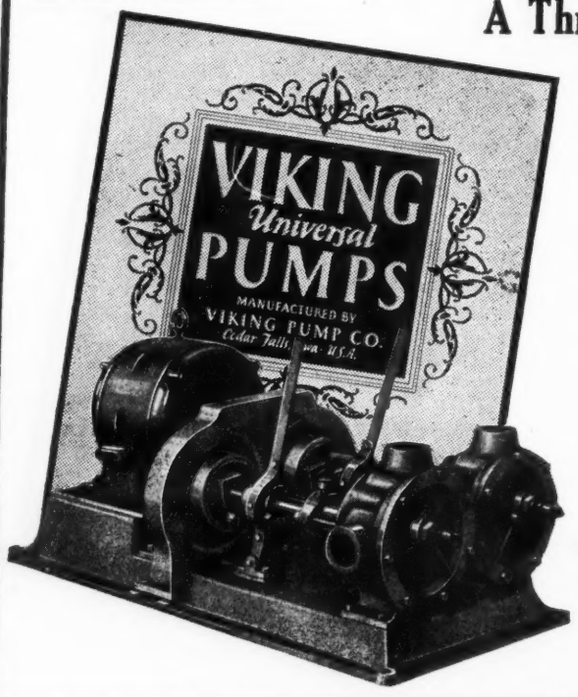
*Only one refiner quoting

From the Oil Well to the Jobber

NEWS

VIKING PUMPS

The type illustrated here is the twin oil pump. Supplied also for engine or belt drive. Furnished on fire wall base if desired. SEND TODAY for the VIKING Pump Book.



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ANY good pump should give you service. The better pump, however, offers you diversified service.

In the Viking you save (1) in low first cost, (2) in operation because less power is used, and (3) in repairs, for it is seldom that a Viking calls for a single dollar for this type of maintenance.

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Viking Pump Co. of Canada, Ltd.	Walkerville, Ontario
Menge Pump & Mach. Co., Ltd.	862 Tchoupitoulas St., New Orleans, La.
De Laval Pacific Co.	61 Beale St., San Francisco, Cal.
Kerr Machinery Corp.	Kerr Building, Detroit, Mich.
Hayes Pump & Machinery Co.	94 Pearl St., Boston, Mass.
The Schirmer Co.	750 Prospect Avenue, Cleveland, Ohio
Southern Engine & Pump Co.	Houston, Texas
Power Equipment Co.	Oliver Building, Pittsburgh, Pa.
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BUILT FOR SPEED

TANKS to be mounted on Bus Chassis capable of high speed must be properly designed. No ordinary tank will do for this purpose. Every BROWN CERTIFIED TANK is custom built and without extra charges. Why don't you send for information at once?

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We are interested in your tanks. Send your catalog and prices.

Make of Truck..... Year..... We operate..... (number) Tank Trucks.

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Name..... Address.....

Refinery Markets on Wax and Heavy Oil Products

Pennsylvania, Oklahoma, North and South Texas, Louisiana, Arkansas, California

WAX

PENNSYLVANIA	Prices Mar. 15	Prices Mar. 8	Prices Mar. 1
(Per Pound, New York			
122-124 White Crude Scale..	- 5¼	- 5¼	- 5⅜
124-126 White Crude Scale..	- 5⅜	- 5⅜	- 5½
OKLAHOMA			
(Per Pound, Group 3)			
124-126 White Crude Scale..	- 5	- 4¾	4¾- 5
CALIFORNIA			
White Crude Scale.....	6 - 6¼	6 - 6¼	6 - 6¼

FUEL OIL

PENNSYLVANIA			
36-40 Fuel Oil.....	6 - 6½	6¼- 6¼	6¼- 6¼
30-34 Fuel Oil.....	5¾- 6	5¾- 6	5¾- 5⅞
28-30 Fuel Oil.....	5¾- 5⅞	5¾- 5⅞	5¾- 5⅞
OKLAHOMA			
38-40 Straw distillate.....	4⅛- 4¼	4 - 4¼	4 - 4⅛
36-38 Straw distillate.....	4 - 4⅛	- 3⅞	3¾- 3⅞
32-36 Gas oil (Gal.).....	3⅞- 4	3¾- 3⅞	- 3¾
26-30 Fuel oil (Bbl.).....	1.35 -1 45	1.30 -1.40	1.30 -1.40
22-26 Fuel Oil (Bbl.).....	1.17½-1 25	1.17½-1.22½	1.17½-1.22½
18-22 Fuel oil (Bbl.).....	1.15 -1.17½	1.15 -1.17½	1.15 -1.17½
KANSAS*			
38-40 Light straw distillate..	4¼- 4⅜	4¼- 4⅜	4⅜- 4⅜
36-38 Light straw distillate..	4 - 4⅛	4 - 4⅛	4 - 4⅛
32-36 gas oil.....	- 4	3¾- 4	3¾- 4
18-22 Fuel oil.....	1.20 -1.30	1 20 -1.30	1.20 -1.30
24-26 Fuel oil.....	1.30 -1.40	1.30 -1.40	1.30 -1.40

*F. O. B. refinery Kansas destination.

NORTH TEXAS	Prices Mar. 15	Prices Mar. 8	Prices Mar. 1
38-40 Straw Distillate.....	4⅛- 4¼	.....	.....
36-38 Straw Distillate.....	3⅞- 4	3¾- 4	3¾- 3⅞
32-36 Gas Oil (Gal.).....	- 3¾	- 3¾	3⅝- 3¾
24-26 Fuel per (Bbl).....	1.35 -1.40	1.35 -1.40	1.30 -1.35
GULF COASTAL			
Fuel.....	1.55 -1.65	1.55 -1.65	1.55 -1.65
Gas Oil.....	- 5¼	- 5¼	- 5¼
NORTH LOUISIANA			
32-36 Light Gas Oil (Gal.)...	3¾- 4	3¾- 4	3¾- 4
16-20 Fuel Oil (Bbl.).....	1.15 -1.20	1.17½-1.20	1.15 -1.20
ARKANSAS			
32-36 Gas Oil.....	- 4	3¾- 4	3¾- 4
Road oil.....	.....	.....	-1.26
Smackover Crude Fuel.....	1.10-1.15	-1.15	1.15 -1.25
CALIFORNIA*			
14-18 Fuel Oil (Bbl.).....	1.00	1.00	1.00
14-18 Bunker Oil (Bbl.).....	1.00	1.00	1.00
24-30 Gas Oil (Bbl.).....	1.15	1.15	1.15
27 + Diesel Oil (Bbl.).....	1.15	1.15	1.15

*(San Joaquin Valley, San Francisco 4c per bbl. more.)

NEW ENGLAND (F. O. B. Boston and Fal. River)			
*30-32 gas oil (gal.).....	- 5¾	- 5¾	- 5¾
Fuel Oil (Bunker C) bbl.....	-1.82½	-1.80	-1.82½

Above prices are f. o. b. refinery in tank car. They are the prices at which the bulk of the products on the open market move. Whoever has knowledge of any open market prices on any considerable quantity of goods differing from the foregoing, will favor us with this information.

*Only one refiner quoting.

(Continued from page 121)

come next week, but others, and they appear to be in the majority, feel that the entire month of March is going to be one of losses. April may bring slightly better prices, they say, but May will be the month of price climbing.

No Export Activities

Reports were circulated in Oklahoma the latter part of the week that at least four refineries in north Texas were going to close down for repairs. Of the four, one will be closed within a week for a period of 60 or 90 days while three stills are rebuilt, one will continue to run but will shut down one cracking unit at a time for repairs, while the other two will continue to operate.

The export demand has been little if any better than the domestic demand the past week. Between one and two million gallons of 60-62, 400 e. p. and 61-63, 390 e. p. gasolines were purchased during the week in Oklahoma and Texas for export at prices around 11 to 11⅛ cents in Texas, and 11½ cents, Oklahoma, but the buy failed to have any effect on the 60-62 market.

The reduction Friday in the Gulf export gasoline prices was cause for more pessimism on the part of both Texas and Oklahoma refiners who are shipping on Standard Oil Co. of New Jersey contracts.

The ups and downs of the Gulf export gasoline market have been puzzling as far as refiners are concerned. They said at the time the price was raised ½ cent that another half would be added soon. But instead of adding ½ cent, the New Jersey company cut off a quarter of a cent. The second quarter was cut Friday, putting the price back to 11.90 cents f.o.b. north Texas refineries, and 11.80 cents, Oklahoma refineries.

Many of the north Texas refiners say the reduction has been a stiff blow to them, and reports from the field indicate at least one big export purchasing company took a blow along with the refiners.

After the first quarter of a cent cut was made, this company bought some material at the contract price posted by the New Jersey company, which was 12.15 cents, north Texas. It was reported that in a few instances some material was bought for 12 cents.

The second reduction, however, put the contract price well under even these purchases.

Interest in the kerosene market in Oklahoma lagged the past week causing some material to be offered on the open market. One sales representative of a large refinery said that whereas two weeks ago his company was behind on shipments even to their best customers, they were now in a position to offer some kerosene on the open market.

Kerosene in Texas, however, continued to get a good play, with prices ranging all the way from 6⅝ to 7¼ cents. Most of the material is reported to be in the hands of marketers or brokers at present. The tight situation also prevailed in Kansas, Arkansas and Louisiana.

With gasoline the only refined product which has been increasing faster than the demand, it is not surprising that distillates should have one more flurry at least before the season is over. Distillates are scarce in practically all areas.

All prices and market information printed herein have been gathered by the staff of National Petroleum News from reliable sources and so far as can be ascertained thoroughly represent the going market as defined for each product on the date given for those particular prices. Both buyers and sellers have been checked in the gathering of this information and actual sales studied.

These prices and this information are subject at all times to correction for errors. Anyone having knowledge of any facts which would indicate anything different from the information which is given, is especially urged to send in those facts to the head office of National Petroleum News at once, or take them up with the nearest representative. All such facts will be promptly and thoroughly investigated.

The staff of National Petroleum News is cognizant of the fact that this market information has come to have a high standing in the industry. It wants to not only maintain that standing, but to improve it and to that end, invites the co-operation of the entire oil industry.

Cold Wave Brings Quick Demand For Light Fuel Oils

STRENGTH in light fuel products was the feature of the oil market in Chicago this week. That strength came as a result of a cold wave that surprised the populace in general throughout the middle west, including the oil jobbers.

After the cold snap that brought temperatures in Chicago down to 9 and recorded some zero temperatures in Michigan and Wisconsin on Sunday, March 6, there was a warm spell that caused consumers and jobbers alike to run low on the domestic fuel stocks. The following Friday, March 12, the mercury dropped again to similar levels and brought domestic fuel jobbers into the market with a rush.

The gasoline market has been dead. Some time during the week just closed, snow has fallen in every portion of Standard Oil Co. of Indiana territory. Motoring is light. Country roads are bad; rough where they are frozen and otherwise muddy. Jobbers are buying for current requirements only, and that is not much. There appears to be small demand for high test gasoline, and that is entirely a domestic demand.

Export material, 64-66 375 e.p. gasoline, is easy on the present market at 12 to 12¼ cents. U. S. Motor specification gasoline is weak at 9¾ to 10 cents, and the volume of business at a dime is small. That is acknowledged even by the refiners who are quoting nothing under that figure. It is worthy of mention that today's price is only about a quarter of a cent a gallon above the prevailing quotation before the advance in Mid-Continent crude oil on Feb. 1. The prevailing sentiment is pessimistic for gasoline market over the current month.

The weather forecast for the week ending March 20 is not very encouraging for those who wish to see the gasoline market open soon with some of its springtime strength and assurance. The weather man in the official outlook issued today, covering all of Standard Oil Co. of Indiana territory says there will be rather general precipitation, snow in the north and rain or snow in the south, about the middle and again toward the last of the week, accompanied by temperatures about normal or below.

Some of the stiffness has gone from the kerosene market also since last week. At the present writing 41-43 is easier and more abundant than a week ago at 6¾ cents a gallon flat. The better material is still scarce however. Material of 42-44 gravity is fairly strong and rather scarce yet at 7¼ cents. Probably the recent cold waves have tended to remove the visions of early spring plowing from the minds of oil jobbers in the Ohio river valley. But a more probable suggested cause for the softening of kerosene is that more refiners have been making the cut.

Distillate of 38-40 gravity is scarce and strong at 4⅛ to 4⅜ cents, with nothing available at 4⅛ except goods with a flash point over 175, and even for that material the demand is good. Gas oil is enjoying the same sort of popularity. It is strong and scarce at 4 to 4⅛ cents. Ordinary gas oil is bringing 4 cents flat and a premium of ⅛ cent can be collected with ease for material having a zero cold test or a good marketable straw color.

Eastern and Central Kentucky Markets

The general tone of the Kentucky markets has been steady for the past week. Following are the prices according to the two districts.

	Eastern	Central
50-60 Gasoline	12¾	11¾
60-62 Gasoline	13¼	12¼
64-66 Gasoline	14	13¼
68-70 Gasoline 350-360 end point	14¾	14¼
Fuel oil 24-26	5⅛	
Kerosene 41-43 water white		8¾
Gas oil	6	5¾

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Petroleum Markets-Every Day

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Week's Price Changes Tank Wagon Markets

Gasoline Changes

Standard of New Jersey—T.w. and s.s. prices gasoline advanced 1½ cents, Virginia, covering 1½ cent increase in road tax, **March 11.** Total road tax now is 4½ cents.

Magnolia Petroleum—T.w. and s.s. prices at Muskogee reduced 1 cent, and at Oklahoma City, 3 cents, **March 3,** Tulsa remained unchanged. Muskogee prices became 19 cents t.w. and 22 cents s.s., and Oklahoma City, 17 cents t.w., and 20 cents s.s.

T.w. and s.s. prices in Arkansas reduced ½ cent, **Feb. 27,** making Ft. Smith and Little Rock 18.5 cents and 21.5 cents respectively, and Texarkana 20.5 and 23.5 cents respectively, including road tax.

T.w. and s.s. prices in Texas were reduced 1 cent generally on **Feb. 12.** Prices have been incorrect in the tank wagon table in past few issues, but are corrected in this week's table.

Continental Oil—T.w. and s.s. prices of gasoline advanced 1 cent generally in Idaho, and 1½ cents generally in Utah, **March 12.**

Crude Reduction Influence Not Felt in Pennsylvania

CLEVELAND, O., March 16.—The crude reduction of March 8th on all Pennsylvania crudes apparently has had little influence in the action of the market, as prices have remained at the same level as previous to the announcement.

The general tone of the market has been diagnosed as being steady with the normal amount of sales for this time of the year, although it really could not be classified as an active market. Gasolines have not been moving in very great quantities. Many refiners have been storing their output in anticipation of obtaining better prices after the weather breaks and demand picks up.

Kerosene has been moving in good shape with sales running from 8¼ to 9c. The average price obtained has been 8½c. One refiner reports his entire output for the month of March has been contracted for at 8¼c.

In the Lube stocks, Neutrals have been very scarce. The 220 and 200 grades, in any quantities have been hard to locate. Cylinder stocks have been selling in fair demand. The 600 grade enjoying a rather wide range, being quoted as low as 16c and as high as 19c. The average as near as could be ascertained appears to have been 17½c, which represents a good quality green stock.

Fuel oil has been holding steady around 6 to 6½ cents.

Tank Wagon, Service Station Markets for Gasoline and Kerosene In United States Territories and Canada

BELOW are given in cents a gallon, the tank wagon price of gasoline without the special taxes levied against motor fuels by many states, the amount of the state taxes, the total tank wagon price, with tax added in and the service station or retail price of gasoline as quoted by the Standard Oil Companies in their various marketing territories. The right hand column is the tank wagon price of kerosene. By tank wagon price is meant the price to resale agents or dealers.

These Prices in Effect March 15, 1926

S.O. NEW JERSEY TERRITORY

	Gasoline T.W.	Tax	Total	S.S.	Oil T.W.
Atlantic City, N. J.	16	0	16	*	15
Newark, N. J.	16	0	16	18	15
Annapolis, Md.	16	2	18	*	15
Baltimore, Md.	16	2	18	21	15
Cumberland, Md.	16	2	18	21	15
Washington, D. C.	16	2	18	21	15
Danville, Va.	17	4.5	21.5	*	15
Norfolk, Va.	17	4.5	21.5	24.5	15
Richmond, Va.	17	4.5	21.5	24.5	15
Roanoke, Va.	17	4.5	21.5	24.5	15
Petersburg, Va.	17	4.5	21.5	*	15
Williamsburg, Va.	17	4.5	21.5	*	15
Charleston, W. Va.	16.5	3½	20	23	15
Clarksburg, W. Va.	16.5	3½	20	23	15
Keyser, W. Va.	16.5	3½	20	*	15
Parkersburg, W. Va.	16.5	3½	20	23	15
Wheeling, W. Va.	16.5	3½	20	23	15
Charlotte, N. C.	17	4	21	24	15
Hickory, N. C.	17	4	21	*	15
High Point, N. C.	17	4	21	*	15
Mt. Airy, N. C.	17	4	21	*	15
Salisbury, N. C.	17	4	21	*	15
Charleston, S. C.	17	5	22	25	15
Columbia, S. C.	17	5	22	25	15

*Dealers set own prices. S. O. New Jersey does not operate station.

S. O. NEW YORK

*New York City	18	0	18	22	16
Albany, N. Y.	†18	0	†18	†20	16
Buffalo, N. Y.	17	0	17	20	16
Rochester, N. Y.	†17	0	†17	†21	14
Syracuse, N. Y.	18	0	18	20	15
Boston, Mass.	18	0	18	21	16
Augusta, Me.	18	3	21	24	16
Manchester, N. H.	18	2	20	24	16
Burlington, Vt.	18	2	20	22	16

*In steel barrels.

†At Rochester and Albany, Standard sells two grades of gasoline, the above price applying to its Socony grade, and another grade being sold 2c below this price.

ATLANTIC REFINING

Pittsburgh, Pa.	17	0	17	*22	16
Philadelphia, Pa.	17	0	17	*22	16
Allentown, Pa.	17	0	17	*22	16
Erie, Pa.	15	0	15	*20	14
Scranton, Pa.	17	0	17	*22	16
Altoona, Pa.	17	0	17	*22	16
Dover, Del.	17	2	19	22	16
Wilmington, Del.	17	2	19	22	16
Providence, R. I.	18	1	19	22	16
Springfield, Mass.	18	0	18	20	16
Worcester, Mass.	18	0	18	20	16
Hartford, Conn.	18	2	20	23	15
New Haven, Conn.	18	2	20	23	16
Boston, Mass.	18	0	18	21	16

*Contains 2-cent tax collected by retail dealer and paid by him directly to state.

S. O. KENTUCKY

Lexington, Ky.	17	5	22	25	16
Louisville, Ky.	18	5	23	26	15
Covington, Ky.	18	5	23	26	16
Clarksdale, Miss.	17	3	20	23	14.5
Jackson, Miss.	17	3	20	23	13.5
Natchez, Miss.	16.5	3	19.5	22.5	14
Vicksburg, Miss.	16.5	3	19.5	22.5	14
Birmingham, Ala.	18	2	20	23	16.5
Mobile, Ala.	17	2	19	22	15
Montgomery, Ala*	19	2	21	24	17.5
Atlanta, Ga.	†19	3½	23	26	17
Augusta, Ga.	†19	3½	23	26	16.5
Macon, Ga.	†19	3½	23	26	17
Savannah, Ga.	†16	3½	20	23	15
Jacksonville, Fla.	17	4	21	24	15
Miami, Fla.	19	4	23	26	16.5
Tampa, Fla.	17	4	21	24	15
Pensacola, Fla.	17	4	21	24	15.5

*Local privilege tax of 1 cent on gasoline and ½ cent on kerosene at Montgomery included.

†Georgia has ½ cent per gal. inspection fee on gasoline which is deducted as well as the state gasoline road tax of 3½ cents, to get the actual net tank wagon market to dealer.

S. O. INDIANA

	Gasoline T.W.	Tax	Total	S.S.	Oil T.W.
Chicago, Ill.	†17	0	†17	19	12
Decatur, Ill.	17.2	0	17.2	19.2	12.5
E. St. Louis, Ill.	16.1	0	16.1	18.35	11.6
Joliet, Ill.	17.4	0	17.4	19.4	12.7
Peoria, Ill.	17.2	0	17.2	19.2	12.5
Quincy, Ill.	17.2	0	17.2	19.2	12.3
Indianapolis, Ind.	17.2	3	20.2	22.2	12.7
Evansville, Ind.	17	3	20	22	12.5
South Bend, Ind.	17.4	3	20.4	22.4	12.9
Detroit, Mich.	17.8	2	19.8	21.8	13.2
Grand Rapids, Mich.	17.7	2	19.7	21.7	13.1
Saginaw, Mich.	17.9	2	19.9	21.9	13.3
Madison, Wis.	17.3	2	19.3	21.3	12.5
Milwaukee, Wis.	17.1	2	19.1	21.1	12.3
La Crosse, Wis.	18.2	2	20.2	22.2	13.4
Minneapolis, Minn.	18.2	2	20.2	22.2	13.6
Duluth, Minn.	18.5	2	20.5	22.5	13.6
Mankato, Minn.	18.1	2	20.1	22.1	13.4
Des Moines, Iowa	17.5	2	19.5	21.5	12.9
Davenport, Iowa	17.5	2	19.5	21.5	12.9
Sioux City, Iowa	17	2	19	21	12.5
Mason City, Ia.	17.5	2	19.5	21.5	12.9
St. Louis, Mo.	**16.6	2	18.6	20.9	12
Kansas City, Mo.	††17.9	2	19.9	21.9	11.3
St. Joseph, Mo.	**17	2	19	21	11.9
Fargo, N. D.	19.9	1	20.9	22.9	15.6
Grand Forks, N. D.	20.2	1	21.2	23.2	15.9
Minot, N. D.	19.9	1	20.9	22.9	15.6
Pierre, S. D.	15	3	18	*	14.1
Huron, S. D.	16	3	19	21	14.1
Wichita, Kans.	16.3	2	18.3	21.3	11.8
Bartlesville, Okla.	14.4	3	17.4	19.4	10.9

†Dumps of 100 or more gallons at 16c per gallon.
*S. O. Indiana does not operate station.
**Includes city tax of ½c.
††Includes city tax of 1c.

S. O. NEBRASKA

Crawford, Neb.	18	2	20	*	13.25
Omaha, Neb.	16.25	2	18.25	20.25	12.5
McCook	18.75	2	20.75	22.75	14
Norfolk	17.75	2	19.75	21.75	13
North Platte	18.75	2	20.75	22.75	13.75
Scottsbluff	18.25	2	20.25	22.25	13.25

*Standard has no service station here.

CONTINENTAL OIL

Denver, Colo.	18	2	20	20	15.5
Pueblo, Colo.	17	2	19	19	15.5
Casper, Wyo.	18	2½	20.5	22.5	14
Cheyenne, Wyo.	19	2½	21.5	23.5	15.5
Butte, Mont.	20	2	22	22	17
Helena, Mont.	22	2	24	26	18
Salt Lake City, Utah.	21.5	3½	25	27	18
Boise, Ida.	23	3	26	28	20
Albuquerque, N.M.	21.5	3	24.5	27.5	17.5

S. O. CALIFORNIA

Phoenix, Ariz.	22	3	25	28	21.5
Los Angeles, Cal.	14.5	2	16.5	20.5	15.5
Fresno, Cal.	16.5	2	18.5	22.5	17.5
San Francisco, Cal.	16	2	18	22	15.5
Reno, Nev.	19.5	4	23.5	27.5	19
Portland, Ore.	16	3	19	23	16.5
Seattle, Wash.	16	2	18	22	16.5
Spokane, Wash.	20	2	22	26	20.5
Tacoma, Wash.	16	2	18	22	16.5

S. O. LOUISIANA

Little Rock, Ark.	14.5	4	18.5	21.5	14.5
Alexandria, La.	14.5	2	16.5	19.5	14.5
Baton Rouge, La.	13.5	2	15.5	18.5	13
Lake Charles, La.	15	2	17	20	14.5
New Orleans, La.	*15	2	17	20	13.5
Shreveport, La.	13.5	2	15.5	18.5	13.5
Lafayette, La.	15.5	2	17.5	19.5	14
Bristol, Tenn.	16.5	3	19.5	22.5	15
Chattanooga, Tenn.	15.5	3	18.5	21.5	15
Knoxville, Tenn.	16	3	19	22	15.5
Nashville, Tenn.	15.5	3	18.5	21.5	15
Memphis, Tenn.	15	3	18	21	14.5

*Includes 1c city tax on gasoline and kerosene.

S. O. OHIO

	Gasoline T.W.	Tax	Total	S.S.	Oil T.W.
All Ohio points	19	2	21	23	15

MAGNOLIA PETROLEUM

Muskogee, Okla.	16	3	19	22	10
Oklahoma City	14	3	17	20	12
Tulsa, Okla.	14	3	†17	20	12
Fort Smith, Ark.	14.5	4	18.5	21.5	14.5
Little Rock, Ark.	14.5	4	18.5	21.5	14.5
Texarkana, Ark*	16.5	4	20.5	23.5	13
Dallas, Tex.	14	1	15	19	12
El Paso, Tex.	17	1	18	19	13
Fort Worth, Tex.	13	1	14	16	11
Houston, Tex.	15	1	16	19	12
San Antonio, Tex.	14	1	15	16	11

*Within city of Texarkana, Ark., the state tax on gasoline is 1c per gal. conforming with the Texas state tax. In Texarkana district outside of the city the 4c state tax applies.

†16c to regular power trade, 19c to all other tank wagon consumers.

V. M. & P. NAPHTHA

(Changes ordinarily occur coincident with gasoline)

	Oleum Spirits	V.M.&P. Naphtha	Cleaners Naphtha
Chicago	19	21	21
Detroit	20.2	22.7	22.7
Kansas City	19.2	21.2	21.2
Milwaukee	19.2	23.7*	23.7*
Minneapolis	20.5	25*	25*
St. Louis	18.4	20.9	22.2
New York		18	

*Including state tax.

CANADA

(Per Imperial Gallon, which is 1.2 American Gallons)

ONTARIO

	Gasoline T.W.	Tax	Total	S.S.	Oil T.W.
Toronto	24.5	3	27.5	31	20
Ottawa	25.5	3	28.5	32	21
Cochrane	29.5	3	32.5	36	24.5
Ft. William	28.5	3	31.5	35	22.5

MANITOBA

Winnipeg	28.5	3	31.5	35	22.5

SASKATCHEWAN

Regina	31.5	0	31.5	35	25.5

ALBERTA

Edmonton	32.5	2	34.5	38	27.5
Calgary	30.5	2	32.5	36	26.5

BRITISH COLUMBIA

Vancouver	22	3	25	29	23

QUEBEC

Montreal	24.5	3	27.5	31	20
Quebec City	26.5	3	29.5	33	22
Three Rivers	26.5	3	29.5	33	22

NEW BRUNSWICK

St. John	27.5	0	27.5	32	25
Moncton	27.5	0	27.5	32	25

NOVA SCOTIA

Halifax	27.5	3	30.5	35	28
Sydney	29.5	3	32.5	33	25

PRINCE EDWARD ISLAND

Charlottetown	27.5	2	29.5	34	28

Note: In districts surrounding these points 1c additional is added to city price.

Complete Export Markets

New York Gulf Coast California

Demand Slow for Most Products In Export Market

By Special Correspondent
NEW YORK, March 15

REGARDLESS of the advance in California gasoline and crude oil, U. S. Motor and 64-66 gravity gasoline were weak in the Gulf section. Foreign demand for this product was negligible, and export buying centered on gas oil. Kerosene held firm but demand was light.

Pennsylvania cylinder stocks eased off from ½ to 1½ cents a gallon while Texas lubricants were also weak. There has been a heavy influx of Roumanian and Russian oils throughout Europe. Many of the large Continental buyers who were inquiring for gasoline and kerosene during the early part of the week have postponed purchases in anticipation of lower prices. On Friday, the Standard Oil Co. of New Jersey reduced cased gasoline at New York and bulk gasoline at New Orleans ¼ cent a gallon.

Export Gasoline—New York

Export buying was at a standstill. No bulk inquiries were received, but refiners refused to make concessions regardless of the weakness in the Gulf section. U. S. Motor was generally quoted at 12½ cents a gallon and reports that this price could have been shaded were apparently groundless. Weather conditions have been improving, and in view of the light export buying during the past few weeks, the trade looks for a spirited export demand after Easter. Business in cased gasoline was much below expectations being mainly against old orders. There was an inquiry from the Near East for 20,000 cases of U. S. Motor but this failed to materialize.

Export Gasoline—Gulf Ports

At the start of the week, U. S. Motor was quoted from 11½ to 11¾ cents a gallon, but on Saturday was freely offered at 11¼ to 11½ cents and there were persistent reports current that 11 cents could have been done on a bid. The asking price for 64-66 gravity was 14½ cents a gallon. Foreign buyers showed little or no interest. At the start of the week, there were two inquiries from the United Kingdom for bulk cargoes of 45,000 barrels and 40,000 barrels of U. S. Motor; 64-66 gravity and prime and water white kerosene for April shipment but one of these was withdrawn while the other is still pending. French buyers are uninterested at present.

Cased gasoline was also easier with U. S. Motor offered at $2.20 and 64-66 at $2.40 a case in cargo lots. One of the leading refiners is working on an order for 25,000 cases for shipment to the Far East, presumably Japan, during April. There was an inquiry from Australasia for 20,000 cases for April shipment but this has not been closed yet.

Domestic Gasoline—New York

Atlantic seaboard refiners are looking forward to a marked increase in the jobbing demand shortly. Consumption is already soaring. Weather conditions have been ideal for touring the past week. Jobbers are endeavoring to close contracts for spring delivery at the present price of 12½ cents for U. S. Motor in tank cars at the refineries but there are practically no refiners willing to sell ahead at this figure.

The advance in the tank wagon price in California has improved sentiment, but California gasoline in bulk, f.o.b. New York harbor is still quoted at 12½ cents a gallon. The price of Motor in tank cars delivered to the trade is 13½ cents a gallon.

Domestic Gasoline — Gulf Ports

Regardless of the weakness in export prices, leading refiners are still asking 11¾ cents a gallon for U. S. Motor gasoline in tank cars at the refineries. Demand has improved, and is expected to gain. The winter is virtually at an end and local observers view the weakness in export prices as temporary. Jobbers are contracting ahead for spring and early summer deliveries.

Export Kerosene—New York

Although export demand lagged, prices were well maintained as the week closed with water white held at 10 cents a gallon, bulk, refineries, and prime white at 8¾ cents, same basis. No export inquiries were reported. Stocks are light, and offerings are restricted. There is a steady contract shipment into export channels which tends to prevent stocks from piling up. Cased kerosene remained quiet. A South American buyer placed an order for 10,000 cases of prime and water white for April delivery with a leading independent.

Export Kerosene—New Orleans

There were no bulk sales reported but prices were firmer than during the previous week, with water white well held at 8½ cents and prime at 7½ cents a gallon. Refiners are shipping large quantities against contracts closed last month and are not concerned over the let-up in foreign demand. Cased kerosene was firmer with water white quoted at $1.85 and prime at $1.75 a case in cargo lots. A leading Independent is working on an inquiry for 35,000 cases for April shipment to the Far East while another concern expects to close an order for 25,000 cases for April shipment to the Near East at the above prices.

Domestic Kerosene—New York

Jobbing demand for kerosene along the Atlantic seaboard continues active. The leading refiners are asking 10 cents for water white at the refineries while delivered to the trade 11 cents is quoted. Prime white is held at 8¾ cents refinery, and 9¾ cents, delivered in tank cars. Consumption is large, as many former coal burners are still using kerosene regardless of the termination of the coal strike.

Bunker Oil—New York

Demand for bunker oil is fair. Business is not spirited but is up to expectations. Grade C is still held at $1.75 a barrel at the refineries and $1.81½ f.a.s. New York harbor. Local refiners have large contracts on hand which are keeping them busy. Diesel oil did not show any change. The price is still held at $2.30 a barrel f.o.b. New York harbor refineries, with the bulk of the movement against old orders.

Bunker Oil—Gulf Ports

Cargo offerings of bunker oil were less plentiful and no sellers were reported at $1.50, the previous week's price. Most refiners were asking $1.55 a barrel, in cargoes and $1.60 for bunkering purposes. At Tampico, grade C in cargoes ranged from $1.40 to $1.45 a barrel including the taxes while heavy Panuco crude oil was firmly held at $1.18 a barrel, at Tampico, taxes to be added.

Gas Oil—New York

Consumption of gas oil is fairly large, but export buying has been sluggish, most of the orders going direct to Gulf refiners. Small quantities are being shipped abroad against consignment but no bulk purchases were reported. Refiners are firm at 6 cents a gallon for 36-40, refinery while 28-34 is quoted at

5½ cents. Buyers say that there is practically nothing to be had below these prices. Stocks on hand are not large, although capable to taking care of requirements along the Atlantic seaboard.

Gas Oil—Gulf Ports

The market was decidedly more active than during the preceding period, and on the strength of a much improved foreign demand, virtually all grades were advanced ¼ cent a gallon by the leading factors. A Scandinavian buyer entered the market early in the week for 35,000 barrels of 26-28 gravity transparent gas oil, and it is understood that this has been booked by a leading Independent, shipment to be made in April. The price was quoted at 5 cents a gallon.

A United Kingdom buyer entered the market later in the week for 40,000 barrels of 26-28 transparent gas oil, also for April shipment. Reports had it that another leading independent booked this at the same price. Demand for 32 plus dark oil is better, but no big bulk sales were reported. There was little or nothing to be had below 4⅝ cents a gallon.

Lubricants—New York

Cylinder stocks declined from ½ to 1 cent a gallon during the week. Stocks are large and reported to be "backing up." Export demand is waning and no bulk movements have been reported. The drop in Pennsylvania crude oil also tended to depress this market. Pennsylvania 600 s.r. in barrels, New York, was freely offered at 23½ cents, a decline of ½ cent from the previous week, while 600 flash was available at 31 cents a gallon on a bid.

The neutral oils were easier and while there were reports of shading, no actual reductions were noted. Black oil was down ½ to 1 cent a gallon. For 25-30 cold test the price ranges from 13 to 13½ cents, in barrels, New York while 15 cold test is offered at 14½ cents.

Lubricants—Gulf Ports

Unusually quiet conditions prevailed. There was a report current that one of the leading Independents booked a cargo of 30,000 barrels of assorted lubricants for April shipment to the United Kingdom but this was not confirmed. European consumers and marketers are still buying large quantities of Galician oil, which is held partly responsible for the slump in export demand. The tendency was a shade easier.

Wisconsin Jobbers Meet March 17

MILWAUKEE, Wis., March 13.—The next meeting of the Wisconsin Independent Oil Jobbers Association is scheduled for March 17, at the Pfister Hotel, Milwaukee, one day only. Weston Atwood, head of the collective buying department of the National Petroleum Marketers' Association is on the program. The Goodyear Tire & Rubber Co., also will have a representative in Milwaukee to talk about the breather-bag system of vapor salvage.

New York Export Market

Prices below are an index to the export markets as of the dates given. In many cases they are actual sales prices. So many factors enter into the price in export transactions that an actual market price governing the bulk of transactions cannot be given.

GASOLINE	Mar. 15	Mar. 8
U. S. Motor Tank cars Ref.	12½	–12½
U. S. Motor cases	27.90	–28.15
California grade U. S. Motor F. O. B. N. Y. Bulk	12½	–12½
KEROSENE		
41-43-150 W. W. Tank cars Ref.	10	–10
41-43-150 W. W. Cases	19.90	–19.90
42-44-110 S. W. Cases	18.40	–18.40
GAS OIL		
36-40, Bulk Refinery	–06	–06
28-34, Bulf Refinery	–05½	–05½
MEXICAN BUNKER OIL		
Grade C. f. o. b. ref. Bulk	1.75	– 1.75
Diesel Oil f. o. b. ref. Bulk	2.30	– 2.30

LUBRICATING OILS

The following prices are cooperage basis f. o. b. New York, products being manufactured by inland refineries.

CYLINDER OILS (Bbls.)		
1 inch Immersion Test; All Penna. Products		
Filtered D 600	31	–32
Filtered E 600	29½	–30
Unfiltered 600 s. r.	23–23½	24–25
Unfiltered 650 s. r.	29	–30
600 flash s. r.	31	–32
630 Flash	40	–42
RED PARAFFIN (Bbls.) (Viscosity at 70)		
300 vis. No. 5 color	21½	–21½
250 vis No. 5 color	20½	–20½
High Viscosity No. 5 color	26	–26
NEUTRAL OILS (Bbls.) (Viscosity at 70)		
200 vis. at F. Pale. No. 3 color	–31½	–31½
180 Pale No. 3 color	–30	–30
150 Pale No. 3 color	–24¾	–24¾
BLACK OIL (Bbls.)		
25-30 cold test	13	14 –15
15 cold test	14½	15 –15½

MEDICINAL OILS (Includes Price of Drums) (Penna. Stocks)	Mar. 15	Mar. 8
Domestic 875-.885 s. g.	1.00–1.08	1.00–1.08
Domestic 865-.870 s. g.	.75– .80	.75– .80
Russian 885-.890 s. g. 325-330 vis.	1.20–1.25	1.20–1.25
WAXES (Penna. Stocks) (F. A. S. Carload Lots)		
WHITE CRUDE SCALE		
122-124 A. m. p.	–05¼	–05¼
124-126 A. m. p.	–05¼	–05¼
MATCH		
105-108 A. m. p.	–06	–06
FULLY REFINED		
120-122 A. m. p.	–06	–06
123-125 A. m. p. Philadelphia	–06⅛	–06⅛
125-127 A. m. p.	–06⅛	–06⅛
128-130 A. m. p.	–06⅜	–06⅜
130-132 A. m. p.	–06⅜	–06⅜
133-135 A. m. p.	–06½	–06½
135-137 A. m. p.	–07¼	–07¼
SEMI REFINED		
122-124 A. m. p.	–05¾	–05¾
YELLOW CRUDE SCALE		
124-126 A. m. p.	–05⅛	–05¼

PETROLATUMS (Penna. Stocks) Per Pound		
Dark Green	02¾	02¾
Veterinary	03¼	03¼
Light Amber	03⅜	03⅜
Dark Amber	03⅜	03⅜
Cream	06¾	06¾
Lily White	08½	08½
Snow White	11 –11½	11 –11½

Gulf Export Market

GASOLINE F. O. B. Seaboard Shipments of 20,000 Bbls. and over	Mar. 15	Mar. 8
U. S. Motor, Cargo	11¼–.11½	–.11½
69-62 400 e. p. Bulk	13 –	–.13½
64-66 385 e. p. Bulk	14½–	–.14¾
U. S. Motor, Cases (cargo lots)	2.20	2.25
64-66, Cases (cargo lots)	2.40	2.40
KEROSENE		
Water White, 41-43 bulk	08½	08½–08¾
Prime White, 42-44 bulk	07½	07½–07¾
Water White, cases (cargo lots)	1.85	–1.85
Prime White, cases (cargo lots)	1.75	–1.75
DOMESTIC GAS AND BUNKER OIL		
26-28, gravity, bulk*	05	04¾–05
32 plus, bulk, Dark	04¾	04¾–05
Grade C, Bunker oil	1.60	–1.60
Cargoes	1.55	–1.50

*Transparent through neck of a 4 oz. bottle.

MEXICAN CRUDE AND BUNKER OILS F. O. B. Steamer Tampico		
Heavy, Taxes to be added	1.18	1.15–1.18
Grade C, Bunker oil Taxes paid	1.40–1.45	1.45
Grade C, Bunker oil F. A. S. New Orleans	1.60	1.60

LUBRICATING OILS

SOUTH TEXAS

(Viscosity at 100°F; cold test 0) (Tanker, F. O. B. Houston)

	Mar. 15	Mar. 8
100 Vis. No. 2 Unfiltered Pale	07	07
150 Vis. No. 2½ Unfiltered Pale	09	09
200 Vis. No. 3 Unfiltered Pale	10½	11
300 Vis. No. 3 Unfiltered Pale	13½	14
500 Vis. No. 3½ Unfiltered Pale	14½	15
200 Vis. No. 5½ Red Oil	11	11
300 Vis. No. 5½ Red Oil	12	12½
500 Vis. No. 6 Red Oil	13½	13½
800 Vis. No. 6 Red Oil	16	16½

MEDICINAL OILS

Pacific Export Market

(Cargo lots quotations at seaboard, Los Angeles)

	Mar. 15	Mar. 8
Gasoline, U. S. Motor—54°-56°	8 –10	8 –10
Gasoline, U. S. Motor—blends and special cuts	9 –10½	9 –10½
Gas Oil, 24°—30°B. per bbl.	$1.15	$1.15
Diesel Oil, 27°B—plus per bbl.	$1.15	$1.15
Bunker Oil, 14°—18°B. per bbl.	$1.00	$1.00
Fuel Oil, 14°—18°B. per bbl.	$1.00	$1.00
Kerosene, W. W. 40°—42° B per gal., 125-150 flash test	05 –05½	05 –05½
Cased Goods		
Gasoline, U. S. Motor	$2.35	$2.35
Kerosene, W. W. 40°—42° B per case, flash test 125-150	$1.40–1.50	$1.40–1.50

N. Y. Domestic Market

The following light oil, gas and fuel oil prices are F. O. B. New York refineries, being products made from Domestic (including California) and Mexican Crudes.

	Mar. 15	Mar. 8
U. S. Motor Gasoline, Tank Cars Delivered greater N. Y.	–13½	–13½
U. S. Motor Gasoline, Tank Cars Bayonne	–12½	–12½
Kerosene, 41-43 150 W. W. Tank Cars De'd greater N. Y.	–11	–.11
Grade C Bunker f.o.b. N. Y. Ref.	1.75	1.75
Diesel Oil f. o. b. Refinery	2.30	2.30
Gas Oil, 33-40, Bulk Refinery	–03	
Gas Oil, 28-34 Bulk, Refinery	–05½	–05½

Magnolia Pipe Line Crude Oil Runs

HOUSTON, March 11.—Magnolia Petroleum Company, pipe line department, announces from Dallas headquarters the following crude oil runs for February, which are shown in comparison with January:

	January	February
Hewitt	86,198.80	74,351.32
Healdton	191,575.81	186,418.50
Cushing	331,002.03	262,394.70
Yale	53,784.61	55,826.11
Cement	21,443.83	18,922.70
Duncan	45,457.17	43,146.23
Augusta, Kans.	36,595.80	35,071.95
Walters-Beaver Creek	7,820.51	7,505.66
Bristow	.....	.....
Burbank	44,091.86	43,590.08
Wewoka	277,776.41	304,718.17
Total Okla.-Kans.	1,095,746.83	1,031,945.42
Thrall	965.89	1,488.92
Electra	112,506.20	99,189.48
Burkburnett	84,569.24	75,310.02
Henrietta	6,227.16	6,403.20
Corsicana Heavy	7,864.09	8,138.24
Corsicana Light	20,723.86	22,358.38
Comanche	23,431.65	22,941.96
Olden	28,673.63	28,514.59
Stephens	15,522.01	14,624.10
Coleman	659.96	304.32
Mirando	34,873.88	36,249.96
Mexia	8,435.66	1,430.23
Luling	196,851.08	192,510.49
Archer	74,161.84	62,335.73
Lytton Springs	150,409.87	135,315.34
Iatan	6,554.54	4,106.63
Total Texas	772,430.56	711,221.59
Haynesville	5,441.78	5,182.64
Bull Bayou	36,928.99	33,476.39
Cotton Valley	20,471.36	8,559.06
Total Louisiana	62,842.13	47,218.09
El Dorado Light	80,402.91	76,297.57
East El Dorado	2,323.84	2,360.51
Total Arkansas	82,726.75	78,658.08
GRAND TOTAL	2,013,746.27	1,869,043.18

Gulf Coastal Lubes Stronger

HOUSTON, March 15.—Sale of a 40,000 barrel cargo of mixed grades of lubricants by a Gulf Coastal manufacturer has further cleaned up accumulation of stocks in the Houston district and materially strengthened the market. This sale follows a commitment reported last week covering 25,000 barrels of mixed grades. With these quantities of lubricants out of the way and the probable movement of another cargo scheduled for late May or early June delivery, the market now is stiff for strictly Gulf Coastal grades.

Prices are unchanged but the disposition to grant concessions meeting competition of other lubricants is virtually removed with the better storage stock situation.

Tristler Quits Imperial

TULSA, March 13.—J. R. Tristler, in charge of the refinery and sales office of the Imperial Oil Marketing Co. at El Dorado, Ark., has resigned to enter another line of business in California, and has been succeeded by E. C. Prator, formerly assistant sales manager in the Tulsa office. Mr. Prator left last Monday night for Arkansas to assume his new duties.

A successor for Mr. Prator in the Tulsa office has not been named as yet.

Crude Oil Prices All Fields

ALL PRICES EFFECTIVE, *March 15*

EASTERN FIELDS
Posted by Joseph Seep Purchasing Agency

Penna. Grade Oil in New York Transit Lines (Alleghany, N. Y. District)	$3.65
Bradford District Oil in National Transit Lines (Bradford District)	3.65
Penna. Grade Oil in National Transit Lines (Other Pennsylvania)	3.55
Penna. Grade Oil in Southwest Penna. Pipe Lines (Other Pennsylvania)	3.55
Penna. Grade Oil in Eureka Pipe Lines (West Virginia)	3.50
Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O. district)	3.30
Keister Grade in National Transit Lines (Butler Co.)	$2.45
Gaines, Tioga Co. (Pa.)	2.95
Cabell Grade in Eureka Pipe Lines (West Virginia)	2.20
Corning Grade in Buckeye Pipe Lines (Ohio)	2.35
*Somerset Medium in Cumberland Pipe Lines (Kentucky)	2.30
*Somerset Light in Cumberland Pipe Lines (Kentucky)	2.45
Ragland Grade in Cumberland Pipe Lines (Kentucky)	1.15

*Somerset oil run prior to Oct. 1, 1925, takes price of 6 cents lower than above quotations.

CENTRAL STATES FIELDS
Posted by Ohio Oil Co.

Wooster	$2.35	Indiana	$2.00	Plymouth	$1.65
Lima	2.23	Princeton	2.12	*Canadian Petrolia	2.68
Waterloo	1.10	Illinois	2.12	*Posted by Imperial Oil, Ltd.	

OKLAHOMA, KANSAS And NORTH TEXAS FIELDS
(Prices of Prairie Oil & Gas Co.)
(Prairie's prices apply in Oklahoma, Kansas, North and Central Texas.)

28-28.9	$1.40	41-41.9	$2.44
29-29.9	1.48	42-42.9	2.52
30-30.9	1.56	43-43.9	2.60
31-31.9	1.64	44-44.9	2.68
32-32.9	1.72	45-45.9	2.76
33-33.9	1.80	46-46.9	2.84
34-34.9	1.88	47-47.9	2.92
35-35.9	1.96	48-48.9	3.00
36-36.9	2.04	49-49.9	3.08
37-37.9	2.12	50-50.9	3.16
38-38.9	2.20	51-51.9	3.24
39-39.9	2.28	52 and above	3.32
40-40.9	2.36		

The Texas Co. adopted same schedule as Prairie on Feb. 1.

Humble Oil & Refining Co. Prices

(Ranger, North Texas, Mexia, Powell, Richland, Wortham, Lytton Springs, Currie and Moran crudes all in Texas.)

Effective Feb. 1, Humble posted same gravity and price schedule as that posted by Prairie, excepting that Humble is paying 8c less for each full degree below 28 gravity.

Magnolia Petroleum Co. Prices
In Oklahoma, Kansas and North Texas

Effective Feb. 1, Magnolia posted same gravity and price schedule as Prairie, in all fields where it purchases on a gravity basis, excepting that it is paying $1.20 for all oil below 28 gravity.

Effective Feb. 1, Corsicana heavy was advanced to $1.15 per barrel.

NORTH LOUISIANA—ARKANSAS FIELDS
***Prices of the Standard Oil Co. of Louisiana**

Caddo, below 32	$1.85	Haynesville, below 33	$1.75	Smackover, 24-24.9	$1.25
do 32-34.9	2.00	do 33 and above	1.85	do 25-25.9	1.30
do 35-37.9	2.10	El Dorado, below 33	1.75	do 26-26.9	1.35
do 38 and above	2.20	do 33 and above	1.85	do 27 and above	1.40
Homer, below 31	1.60	Bull Bayou, 32-34.9	1.70	De Soto	2.05
do 31-32.9	1.75	do 35-37.9	1.85	Crichton	1.85
do 33-34.9	1.85	do 38 and above	2.00	Bellevue	1.50
do 35 and above	1.95	Smackover, below 24	1.00	Cotton Valley	1.10

*Same prices maintained by The Texas Co., Gulf Refining Co. of Louisiana and Louisiana Oil Refining Corp. All purchasers of Smackover have maintained since Feb 1 and 2, the same gravity and price schedule as Standard. Gulf is paying 95c for Calion (East El Dorado Crude.) Louisiana Oil Refg. Corp. is paying $1.40 for Urania, La. crude, effective March 1.

STEPHENS, ARKANSAS
Posted by Louisiana Oil Refining Corp., and Atlantic Oil Producing Co.

26 and above	$1.50	Below 26	$1.30

GULF COASTAL FIELDS
Posted by Humble Oil & Refining Co.

Grades A	$1.50	27-27.9	$1.40
Grades B:		28-28.9	1.45
Below 25	1.25	29-29.9	1.50
25-25.9	1.30	30 and above	1.55
26-26.9	1.35		

Humble is paying the above prices in Goose Creek, Hull, Liberty, West Columbia, Orange and Pierce Junction fields. All other Gulf Coastal crudes are classified as A grades only. Other major purchasers are The Texas Co., Gulf Production Co., Sun Oil Co., and Sinclair Crude Oil Purchasing Co.

ROCKY MOUNTAIN FIELDS
Prices of Ohio Oil Co. and Midwest Refining Co.

†Salt Creek 29-29.9	$1.48	36-36.9	$2.04	Rock Creek	$2.00
30-30.9	1.56	37 and above	2.12	†Osage	2.15
31-31.9	1.64	Elk Basin	2.15	†Cat Creek, Mont.	2.15
32-32.9	1.72	Grass Creek light	2.15	Sunburst, Mont.	1.15
33-33.9	1.80	Big Muddy	2.00	†Hogback, N. Mex.	2.20
34-34.9	1.88	Lance Creek	2.15	Artesia, N. Mex.	1.70
35-35.9	1.96				

†Posted by Midwest Refining Co. Midwest also buys Grass Creek light, and Elk Basin.
The Texas Co. buys Salt Creek and Big Muddy crude.

CALIFORNIA
Prices of Standard Oil Co of California

On March 11, 1926, prices on refinable crude oil were advanced from 1c per bbl. for the lowest grades, to 44c per bbl. for the highest grade of 42° gravity. Heavy or fuel grades of crude oil remain unchanged.

Last previous change was 1c to 15c cut on heavy oils on Oct. 27, 1925, but light oils remained unchanged.

The complete schedule of prices in California can be obtained from the editorial department of National Petroleum News on application.

REFINERS' and COMPOUNDERS' SUPPLIES

Following are the average market prices for the week on materials used by refiners and compounders f. o. b. shipping point as effective this date.

Refiners' Supplies

	Mar. 15	Mar. 8
Soda Ash light 58% bags.cwt.	-$1.38	-$1.38
Silicate of Soda 60 deg. drums.....cwt.	- 1.65	- 1.65
Sal Soda wks.....1.10-	1.25	1.10- 1.25
Caustic Soda 70% solid..cwt.	- 3.10	- 3.10
Chloride of Lime.....cwt. works.....	- 2.00	- 2.00
Sulphuric Acid 60 deg. tank cars f. o. b. shipping point.....per ton	-10.00	-10.00
Liquid Chlorine tank cars works.....lb.	- .04	- .04

Compounders' Supplies (Open Market)

Vegetable Oils—		
Linseed carloads spot.....lb.	10.8	10.7
March.....	10.8	10.7
Tanks, spot.....	9.9	9.8
Boiled carloads spot.....lb.	10.9	10.8
*Soya Bean spot, Bbls....lb.	13½	13½
Animal Oils—		
English Degras.....lb.	.05½	-.05½
Domestic Degras, bbls., carloads.....lb.	-.04¾	-.04¾
*Horse.....lb.	-.09¾	-.10
Oleic Acid—		
Dist. Bbls.....lb..	10¾-.11¼	.10¾-.11¼
Saponified Bbls.....lb..	11¼-.11¾	.11¼-.11¾
Castor Oil—		
No. 1 Carlots, Bbls.....	-.13½	-.13½
No. 3 Carlots, Bbls.....	-.13	-.13
Lard Oils—		
Prime Winter Strained. to 1½ffa.40/45c.t.lb.	.17¾	.17½
Extra Winter Strained. 2 to 4½ffa.40/45c.t.lb.	.14¾	.14¾
Extra..... 4 to 5 ffa.40/45c.t.lb.	.14¼	.14¼
Extra No.1 7 to 10 ffa.40/50c.t.lb.	.13½	.13½
No. 1.....15 to 18 ffa.40/45c.t.lb.	.13	.13
No. 2.....22 to 23 ffa.40/45c.t.lb.	.12¾	.12¾
Prime Edible Tallow under 1⅜ffa. 40/45c.t.N.Y.....lb.	-.10⅜	-.10⅜
Tallow acidless.....lb.	-.12¾	-.12¾
Lard Stearine.....lb.	nominal	-.17½
Oleo Stearine.....lb.	-.13	-.13
Neatsfoot Oil—		
Pure.....bbls.-lb.		.17¾ .17¾
Extra.....do lb.		.13½ .13½
No. 1.....bbls.-lb.	.13	.13
Cold pressed.....lb.	.22¾	.22¾
Fish Oils—		
Menhaden Oil Light pressed.....gal.	-.70	-.70
White.....gal.	-.73	-.73
Yellow bleached.....gal.	-.75	-.75
*Herring tank cars coast.....gal.	-.50	-.50
Whale, extra winter bleached.....gal.	-.82	-.82
Seal.....gal.		Nominal
Naval Stores—		
Turpentine, N. Y.....gal.	.99	1.00
Turpentine†.....gal.	.93½	.90
Rosin, B. N. Y.....bbl.	11.25	11.25
Rosin, F. N. Y.....bbl.	14.00	14.00
Rosin, B†.....bbl.	9.50	9.50
Rosin, F†.....bbl.	12.50	12.50
Rosin Oil 1st run.....gal.	.65	.65
Rosin Oil 2nd run.....gal.	.70	.70
Pine Tar—		
Kiln Burnt.....bbl.	15.00	15.00
Retort.....bbl.	16.00	16.00

†Savannah, Ga. market.
*Nominal.

Alcohol—Denatured Formula 5		
Bbls.....gal.	-34	-34
Drums.....gal.	-33	-33

Sulfuric Acid Gains Caustic Soda Weak

By Special Correspondent

NEW YORK, March 15.—Following is a review of the markets for oils and supplies used in compounding and refining:—

Alcohol dull. Easy. Warmer weather curtailing consumption. Stocks large. Rumors or price shading unconfirmed. Little interest in future offerings.

Animal Oils very quiet. Prices virtually unchanged. Lard oil marking time. Pure neatsfoot oil demand slightly more active. Better inquiry for oleic acid at unchanged prices. Tallow oil quiet. Oleo stearine dull. Domestic degras steady but quiet at 4¾ to 5 cents a pound.

Bleaching Powder demand slightly better and prices a shade steadier. Stocks fairly large. Movement mainly against contracts.

Caustic Soda weak. Talk of price shading. Buyers holding off. Purchasing only as needed. Export demand spasmodic.

Liquid Chlorine in good demand at 4 cents pound, tanks, works. Buying interest keener than last week. Stocks lighter.

Sal Soda marking time. Consumption falling. Little interest in future deliveries. Stock moderate.

Soda Ash movement slightly larger but business still sluggish and light. Big consumers operating hand-to-mouth. Prices barely steady.

Sulfuric Acid movement gaining. More interest in future deliveries. Stocks fair. Prices unchanged.

Linseed Oil sluggish and weak. Heavy crop of flaxseed in Argentina depressing market. Tendency downward. Paint and linoleum manufacturers holding off.

Naval Stores steady. More interest in turpentine futures. Export demand less active. Domestic interest keen. Rosins quiet after recent break in low grades. Buying hand-to-mouth. Rosin oils quiet but steady. Tar and pitch quiet and steady.

Benzol Market

By Special Correspondent

NEW YORK, March 15.—A marked increase in demand along with advancing gasoline tank wagon prices during the past few weeks, have resulted in leading marketers posting an inside price of 24 cents a gallon for motor benzol in tank cars at the ovens, compared with 23 to 24 cents which previously was quoted.

Stocks of motor benzol are light, with comparatively little available for spot delivery as distributors are finding all they can do in taking care of outstanding contracts. Local observers look for a record consumption of motor benzol this year. Demand for the other grades has been fair but not quite up to expectations.

Week's Shipments From Los Angeles Decline

LOS ANGELES, March 15.—Bulk petroleum exports from Los Angeles harbor for the week ending today were somewhat lighter than for the previous week, totalling 1,815,676 barrels and being carried to 25 tankers.

Shipments to the Atlantic seaboard and their carriers were as follows:

Str. W. Irish to Philadelphia with 80,536 barrels of gasoline for Atlantic Refining Co.; Str. Agwismith to Bayonne with 105,700 barrels of crude for Tide Water Oil Co.; Str. Francis E. Powell of Philadelphia with 81,394 barrels gasoline for Atlantic Refining Co.; Str. Standard to New York with 117,000 barrels fuel oil for Standard Oil Co. of New Jersey; Str. Byron D. Benson to New York with 85,000 barrels of crude for Tide Water Oil Co.; Str. Swiftwind to Fall River with 78,000 barrels of tops for Swiftsure Oil Co.

The following table shows the division into products of the shipments:

Shipments of Products in Detail

	Barrels					
	Crude	Gasoline	Gas Oil	Fuel Oil	Tops	Kerosene
Atlantic Domestic	190,700	161,930	.....	117,000	78,000	.....
Atlantic Foreign	109,126	.....	.....	.....	.....	.....
Pacific Domestic	325,205	49,880	28,047	232,155	.....	.....
Pacific Foreign	.....	65,888	.....	330,599	.....	97,146

	Barrels
Atlantic Domestic, all products	547,630
Atlantic Foreign, all products	109,126
Pacific Domestic, all products	665,287
Pacific Foreign, all products	493,633
Grand Total Shipments, all products	1,815,676

Holds Gulf Rate Case Hearing In Tulsa

TULSA, Mar. 13.—Testimony of Mid-Continent refiners seeking equalized freight rates to Gulf ports for export was heard here yesterday and today by Examiner Koch of the Interstate Commerce Commission. The examiner will move on to Kansas City next week for final hearings. Earlier hearings have been held at New Orleans, Galveston and Dallas.

Principal witnesses for the refining industry were F. A. Pielsticker, vice president of the Skelly Oil Co. and former president of the Western Petroleum Refiners Association, and A. F. Winn, traffic manager for Skelly.

Chief concern of the witnesses was that the carriers might raise rates from Mid-Continent points to New Orleans in order to give Texas ports a differential. As a matter of fact this was the proposal of the carriers which brought up the present case.

Mr. Pielsticker testified that any advance in rates would certainly cut into the export sales of the Mid-Continent and enable California to get a greater share of the overseas business. He showed that at present, ocean rates from California ports to Europe are 48.8 cents per 100 pounds while the combined rail and ocean rates from the Mid-Continent to Europe are virtually the same figure. California now exports more petroleum products than New Orleans and Galveston combined and in 1925 Mid-Continent and California furnished 68 percent of the petroleum which went into export channels.

It was predicted by Mr. Pielsticker that an increase in rates would cause the export business to pass into the hands of tidewater refiners who bring in their crude by pipe line and thus rob the railroads of business. He pointed out that rate increases in the past have narrowed the marketing territory of Mid-Continent refiners and that an export outlet in necessary.

Mr. Winn presented an exhaustive exhibit showing that distance is not a factor in export rate making in other sections of the country. He showed many instances where rates are the same to all points in a given district although there is a wide difference in hauls involved.

Chinese Boycott Helps California Refiners

LOS ANGELES, March 16.—A continuation of the Chinese boycott on British petroleum products has brought joy to the hearts of California kerosene marketers. Los Angeles is the nearest port to China of any point on the Pacific coast of North America supplying oils and in consequence the local marketers are getting the full benefit of the Chinese kerosene demands.

The Chinese have increased their orders for cased kerosene to a point where it is exceedingly difficult to find adequate shipping facilities to handle them. At present the demands are six times greater than they were a year ago for cased kerosene. This commodity is now forming a major part of every ship's cargo going to China from Los Angeles and no ship is leaving for China without taking from 100,000 to 125,000 cases.

However, the ships are being taxed beyond their capacity and the local warehouses are beginning to accumulate considerable stores of cased kerosene. Most of this business is being carried on by the smaller independent refiners who operate in and about the city of Los Angeles.

As was to be expected the sudden demands have resulted in a price advance. Kerosene in the local open market is about one cent higher while cased prices have advanced to as high as $1.61 in specific instances. A fair range of the prevailing prices on cased lots is from $1.50 to $1.60 a case.

Cased kerosene is now selling C. F. I. Shanghai at from $1.72 to $1.74 (cases are 10 gallons). The shipping rate from Los Angeles including insurance is approximately 27 cents. The gravity of the kerosene now being sold is from about 38 degrees to 40 degrees.

Local gasoline sales and the sales of lubricants are somewhat weaker but all other oil prices excepting that of kerosene are stationary. Gasoline shipments to the east coast have dropped off.

Bureau Engineer to Argentine

BARTLESVILLE, Mar. 15.—R. B. Werey, assistant refinery engineer at the U. S. Bureau of Mines experiment station, has resigned. He is leaving for La Plata, Argentine, where he will be assistant superintendent of the government refinery there in charge of cracking operations. The government plant has the Cross cracking process.

Gulf Coastal Water Shipments, January, 1926, Compared with December, 1925

(All figures in barrels of 42 gallons)

Company—Port	Coastwise Refined December	Coastwise Refined January	Export Refined December	Export Refined January
Standard of Louisiana				
Baton Rouge	1,629,376.00	1,382,745.00	1,382,138.00	908,395.00
The Texas Company				
Port Arthur	1,379,611.00	1,097,412.00	314,554.00	259,548.00
Gulf Refining Co.				
Port Arthur	2,807,630.87	2,464,851.94	99,939.65	113,425.52
Magnolia Petroleum Co.				
Beaumont	1,400,355.19	1,923,223.09x	.....	.....
Humble Oil & Refining Co.				
Baytown	587,890.37	944,329.52	403,884.66	659,152.45
Sinclair Refining Co.				
Houston	401,536.38	323,665.40	109,944.20	57,330.00
Galena Signal Oil Co.				
Houston	74,000.00	148,000.00	55,000.00	80,000.00
Deepwater Oil Refineries				
Houston	.....	.....	75,000.00	.....
Atlantic Oil Producing Co.				
Atreco	.....	52,411.38	.....	.....
Totals	8,280,399.81	8,336,638.33	2,440,460.51	2,077,850.97
	Coastwise Crude		Export Crude	
Standard of Louisiana				
Baton Rouge	1,287,944.00	1,121,979.00	.....	.....
The Texas Company				
Port Arthur	185,604.00	284,306.00	.....	.....
Gulf Refining Co.				
Port Arthur	.....	217,003.83	.....	.....
Sinclair Refining Co.				
Houston	315,594.65	448,593.92	.....	.....
Humble Oil & Refining Co.				
Texas City	971,164.00	916,390.00	.....	.....
Neches Terminal	212,287.00	191,356.00	.....	.....
Baytown	359,890.00	970,592.00	53,543.00	53,427.00
Marland Oil Company				
Texas City	506,746.52	614,795.52	.....	.....
Atlantic Oil Producing Co.				
Port Arthur	184,993.20	282,373.56	.....	.....
Atreco	265,202.21	261,468.69	.....	.....
Smiths Bluff	155,926.55	210,404.38	.....	.....
Sun Oil Company				
Sabine Pass	331,375.00	432,586.00	.....	.....
Vacuum Oil Company				
Texas City	82,311.00	237,087.00	.....	.....
Totals	4,859,038.13	6,188,935.90	53,543.00	53,427.00

xMagnolia Petroleum Co. makes no distinction in reports between coastwise and export shipments.

British Importations

During the week ended Feb. 1st there were 14,899,786 gallons of petroleum imported into the United Kingdom. Larger receipts were:

Consignee	Imperial Gallons	Product	Port of Origin
London:—			
Shell	742,249	Fuel	Curacao
Shell	132,632	Fuel	Singapore
Brit-Pet	672,000	Kerosene	Beaumont
United Oil Importers	211,394	Gasoline	Westwego
Barrow:—			
Anglo-Amer	755,430	Gas Oil	Sabine
Hull:—			
Shell	798,980	Gasoline	B. Pappan
Shell	235,061	Gasoline	B. Pappan
Manchester:—			
Brit-Mex	803,600	Kerosene	Beaumont
Anglo-Mex	629,650	Lubes	Beaumont
Anglo-Mex	1,468,800	Gasoline	Tampico
Lube Prod	190,638	Lubes	Houston
Southampton:—			
Brit-Mex. Pet	2,203,015	Crude	Abadan
Shell-Mex	681,640	Benzine	N. Orleans
Swansea:—			
Natl Oil Ref	2,443,830	Crude	Abadan
Grangemouth:—			
Scottish Oils	2,257,000	Crude	Abadan

Transactions In Oil Shares on New York Stock Exchange

1925 High	1925 Low	1926 High	1926 Low		Listed Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions week ended Mar. 13 Sales	First	High	Low	Last	Ch'ge
79¾	48	74	63	(sh)	200,000	N.P.	American Republics			300	65⅛	65⅛	63	63	—6⅛
47¼	32	59½	44¾	$	56,000,000	$25	Associated Oil	50cQ	Jan. 25, 26	88,600	58¾	58¾	58½	58⅝	— ¼
117½	95½	110	97		50,000,000	100	Atlantic Refining		June 16, 24	4,300	99⅜	104¾	98½	101	+1
117¾	113½	117½	116½		20,000,000	100	do pfd	$1¾Q	Feb. 1, 26	200	117	117	116½	116½	—1
33½	18¾	33½	26		18,428,350	25	Barnsdall Corp. A	50cQ	Jan. 2, 26	9,500	27¾	29⅝	26⅞	28¾	+ ⅞
30	16	29½	25		3,718,275	25	do B	50cQ	Jan. 2, 26	2,600	25	27	25	26½	+1¼
54⅜	23⅞	38⅝	30⅝	$	44,923,000	$25	California Petroleum	50cQ	Mar. 1, 26	92,000	33¼	37⅛	32⅝	34¾	+2
70	42½	73	50		19,884,300	100	General Asphalt			143,700	61¼	71⅜	58½	69	+6⅞
109	86½	113¾	94⅜		7,416,000	100	do pfd	$1½Q	Mar. 1, 26	7,500	103¼	112¼	100½	110	+8⅜
59⅛	42	62⅜	49½		29,223,650	25	General Petroleum	75cQ	Mar. 15, 26	328,500	54½	62⅞	52⅜	60⅜	+5⅜
85	59	72	59		25,000,000	100	Houston Oil			1,300	63	64½	62	64¼	+¼
41¾	13½	34	20½	(sh)	500,000	N.P.	Independent Oil & Gas	25cQ	Jan. 11, 26	42,900	26	27⅜	23⅜	26	+ ½
14½	5½	13¾	9½	$	3,204,590	$10	Indian Refining		Dec. 15, 20	5,300	11½	12⅜	11	11¼	— ⅜
12⅜	6	12½	9¼		4,545,860	10	do ctfs			900	9¾	11¼	9¾	11⅜	+ ⅜
110	77	104	95		2,296,400	100	do pfd		Dec. 15, 21	300	95	95	95	95	—9
1½	¾	¾	¾		1,678,760	10	Kansas & Gulf			6,800	14¾	16	14¼	15⅝	+ ⅞
23¾	13⅝	19⅜	12	(sh)	1,121,530	N.P.	Louisiana Oil			23,700	22¼	28	22	25⅝	+2⅞
35½	20⅜	28⅞	20¾	(sh)	330,000	N.P.	Maracaibo Oil			100,500	55¾	57⅛	53⅜	55⅞	+ ⅜
60½	32⅝	60¼	51⅝	(sh)	1,894,518	N.P.	Marland Oil Co	$1Q	Dec. 31, 25						
$50	$25			$	45,942,800	$100	Mexican Petroleum	$8Q	Jan. 20, 26						
					12,000,000	100	do pfd	$2Q	Jan. 20, 26						
22½	20	12⅛	6	(sh)	945,939	N.P.	Mexican Seaboard		Nov. 15, 24	2,300	8½	9	7⅜	8¾	+ ⅛
38	25¾	37	28⅝	(sh)	1,357,800	N.P.	Mid-Continent Petroleum		Aug. 1 23	55,000	31	33½	30	31⅝	+ ⅜
94¼	88	97	94	$	6,718,000	$100	do pfd	$1¾Q	Mar. 1, 26						
3¼	⅜	2½	1¼		26,013,760	10	Middle States		July 1, 23	4,100	1⅜	1½	1⅜	1½	+ ⅛
1½	1½	1⅜	⅞		3,786,460		do ctfs								
78½	51⅝	88¼	53⅜	(sh)	3,500,000	N.P.	Pacific Oil	$1.50S.A.	Jan. 20, 26	69,500	54¾	56¼	x53⅜	55¼	+ ½
83⅜	59½	76½	60¼	$	48,307,400	$50	Pan American P. & T	$1.50Q	Jan. 20, 26	4,400	64	66	63¾	65	+1½
84½	60⅜	78⅜	62		90,484,800	50	do B	$1.50Q	Jan. 20, 26	46,100	64½	66⅞	64	65⅛	+ ⅛
40¾	37¼	46	34	(sh)	400,000	N.P.	Pan American Western B	50cQ	Jan 30, 26	9,800	37½	41⅞	37¼	40	+1¾
6¼	2¼	11¾	4½	(sh)	198,770	N.P.	Panhandle P. & R			4,900	10¼	10⅜	9⅝	9⅞	—1
60½	37	85	51	$	2,935,200	$100	do pfd		July 2, 23	100	75	75	75	75	—1
47⅛	36¼	48⅝	42⅝	(sh)	2,045,381	N.P.	Phillips Petroleum	75cQ	Jan. 2, 26	74,400	45	46⅞	43⅞	45½	+ ½
3½	1¼	1⅞	1⅜	$	29,622,925	$25	Pierce Oil Corp			1,000	1⅜	1¾	1⅜	1¾	+ ⅜
40	20¼	27⅛	24		15,000,000	100	do pfd		Feb. 1, 22						
8¼	4½	7	4⅞	(sh)	2,500,000	N.P.	Pierce Petroleum			2,900	5⅜	5¾	5½	5½	+ ⅛
32⅜	12½	17½	12⅝	$	11,467,850	$50	Producers & Refiners		Sept. 15, 23	5,500	13⅛	15¾	13⅛	14	—1¼
47⅝	27	35	32¼		2,845,350	50	do pfd		May 1, 25	300	33	34⅛	33	34	+1
33¾	25⅛	31	26¾		75,959,250	25	Pure Oil Co	$7½cQ	Mar 1, 26	26,700	27⅝	28⅜	27¼	27⅝	— ⅜
108½	103	111¾	107		13,000,000	100	do 8% pfd	$2Q	Oct. 1, 25	140	107¼	107¼	x107¼	107¼	+ ¼
57⅜	48¼	57⅜	50	(sh)	773,883	13.40	Royal Dutch, N. Y. shares	$1.339	Jan. 29, 26	4,800	52⅛	52½	51½	51½	— ½
49	39½	48⅝	44⅛	(sh)	93,599	£2	Shell Transport & T	96½e	Jan. 22, 26	200	44⅛	44⅝	44⅛	44⅛	— ⅛
28⅜	21⅝	28⅛	24	(sh)	10,000,000	N.P.	Shell Union Oil	35cQ	Dec. 31, 25	21,800	25½	26¾	25	26½	+1
106½	99½	106½	103	$	20,000,000	$100	do pfd	$1½Q	Feb. 15, 26	100	103⅝	103⅝	103⅝	103⅝	— ¼
28½	17¾	28⅝	20¾		7,207,620	10	Simms Petroleum	50cS.A.	Jan. 2, 26	14,200	22½	24½	22	23⅛	— ¼
24⅞	17	24⅞	20½	(sh)	4,489,320	N.P.	Sinclair Consolidated		May 31, 24	57,800	22¼	25½	21¾	22⅝	— ⅛
94½	78¾	95	91	$	17,852,200	$100	do pfd	$2Q	Feb 15, 26	300	93	94	93	94	+ ⅛
32½	21¾	32⅞	27		23,024,590	25	Skelly Oil Co	50cQ	Mar. 15, 26	12,100	28⅝	30⅛	28	29¼	+ ⅝
67¼	51½	62¼	54⅛		237,610,350	25	S. O. California	50cQ	Mar. 15, 26	33,800	55⅝	57⅞	54⅞	56¾	+ ⅞
47½	38⅜	46⅜	40¼		513,456,025	25	S. O. New Jersey	25cQ	Mar. 15, 26	33,700	41⅞	42⅝	41⅛	42	— ⅝
119	116¼	118⅜	116¼		199,972,900	100	do pfd	$1¾Q	Mar 15, 26	2,300	118	118¼	117½	117½	— ¾
43⅞	38⅛	41⅝	31½	(sh)	1,103,776	N.P.	Sun Oil	25cQ	Mar. 15, 26	2,600	35	35¾	34½	35¾	0
6⅛	2	4¼	2⅝	(sh)	1,121,368	N.P.	Superior Oil Corp		Dec. 20, 20	1,000	3	3	2¾	3	0
55	42¾	54	50	$	164,450,000	$25	The Texas Co	75cQ	Dec. 31, 25	39,800	51⅝	52¾	50¾	51	— ½
23¾	10⅞	19¼	12⅝		8,380,340	10	Texas Pacific Coal & Oil		June 30, 23	14,200	14⅜	15⅜	13¾	14½	+ ¼
36⅞	30¼	39¼	34¼	(sh)	2,018,231	N.P.	Tide Water Oil Co	25cQ	Dec. 31, 25	27,600	37⅜	37⅜	34¾	35	—2½
101	99	103	96	$	25,042,000	$100	do 5% pfd	$1.25Q	Feb. 15, 26	2,900	99½	99½	96	96¾	—3¼
5⅛	3½	4¾	3	(sh)	3,742,029	N.P.	Transcontinental Oil			8,300	3⅝	3¾	3½	3⅝	— ¼
43⅜	33	46	37¼	$	40,480,800	$25	Union Oil of California	50cQ	Feb. 10, 26	22,900	41	43⅜	40½	42⅞	+1¾
134	96¼	94	80		24,423,300	100	Union Tank Car Co	$1¼Q	Mar. 1, 26	1,345	89½	92	89½	92	+2
117⅛	113¼	116½	113¾		12,000,000	100	do pfd	$1¾Q	Mar. 1, 26						
31¾	25½	29 4	26⅛	(sh)	490,000	N.P.	White Eagle Oil & Refining	50cQ	Jan. 20, 26	5,200	27	28	27	27¾	+ ½

*New High †New Low xEx-dividend Total Sales 1,472,985

Standard Oil Stock Traded In New York Curb Market

1925 High	1925 Low	1926 High	1926 Low		Outstanding Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions week ended Mar. 12 Sales	First	High	Low	Last	Ch'ge
26⅝	17¼	19¾	17	£	4,000,000	£1	Anglo American	22.4cS.A.	Jan. 4, 26	1,500	17½	18	17¼	18	+ ⅝
4½	1⅜	2¼	2	(sh)	500,000	N.P.	Atlantic Lobos			300	2	2	2	2	0
12⅜	3	4½	3¾	$	10,000,000	$10	do pfd			300	4	4⅛	4	4	— ⅛
$40	$05	$50	$26		1,000,000	100	Borne Scrymser	‡$4S.A.	Oct. 15, 25	20	$45	$50	$45	$50	+5
72	53½	59½	55		10,000,000	50	Buckeye Pipe Line	$1Q	Mar. 15, 26	500	55½	56	55¼	56	+1
74	48½	73¾	65		3,000,000	25	Chesebrough Mfg	62½cQ	Dec. 29, 25	1,300	71½	71½	68¾	69	0
115	110				1,000,000	100	do pfd	$1¾Q	Dec. 31, 25						
31½	21⅜	25⅞	20⅝		34,914,280	10	Continental Oil	25cQ	Mar. 15, 26	18,900	22	22⅛	21⅞	22¾	+ ⅜
17½	10	16	15¼		1,500,000	25	Crescent Pipe Line		Sept. 15, 23	100	15¼	15¼	15¼	15¼	— ¼
156	132	137	130		3,000,000	100	Cumberland Pipe Line	$8Q	Mar. 15, 26	30	131	132	131	132	+1
96	61	63¾	59		5,000,000	100	Eureka Pipe Line	$1Q	Feb. 1, 26						
68¼	23½	32½	25⅝		16,000,000	100	Galena Signal Oil		June 30, 25	525	27	27⅝	25⅝	25⅝	—2⅛
105	88	94½	78		4,000,000	100	do new pfd	$2Q	Dec. 31, 25	20	78	78	78	78	—6
114	95	97½	92½		2,000,000	100	do old pfd	$2Q	Dec. 31, 25	120	93	93	92¾	92¾	—3¼
95	42¼	99⅜	82⅛		48,750,000	25	Humble Oil & Refining	$0cQ	Jan. 1, 26	12,400	85	90¼	82½	88¾	+2¾
134½	127	144	134¼		20,000,000	100	Illinois Pipe Line	$6S.A.	Dec. 31, 25	2,200	136½	144	136½	143	+7
39¼	27¼	38¾	32½	(sh)	6,491,852	N.P.	Imperial of Canada (new)	25cQ	Mar. 1 26	6,900	34	35½	33½	35	+1
84	57½	70	58	$	5,000,000	50	Indiana Pipe Line	$1Q	Feb. 15, 26	900	68	70	67	69¾	+2¾
35⅜	22⅛	35¼	28¾	(sh)	7,118,138	N.P.	International Petroleum	25c	Feb. 15, 26	19,500	32	32¼	30⅝	32	+ ⅛
25⅝	16½	20⅜	17¾	$	6,362,500	$12½	National Transit	25cS.A.	Dec. 15, 25	200	18½	18½	17¾	17¾	0
79	49¼	50	39		5,000,000	100	New York Transit	75cQ	Jan. 15, 26						
88	67½	80½	70¾		4,000,000	100	Northern Pipe Line	$8S.A.	Jan. 1, 26	50	77½	77½	77½	77¼	+ ½
75¼	60¼	67⅜	59¾		60,000,000	25	Ohio Oil Co	50cQ	Dec. 31, 25	3,900	60¾	64⅛	60⅜	64	+3⅛
44½	19	23	16¼		10,000,000	25	Penn Mex Fuel	50c	May 21, 25	100	18	18	18	18	+ ⅜
65½	45⅞	60¼	53¼		60,000,000	25	Prairie Oil & Gas		July 31, 25	10,500	57⅜	57⅝	54⅜	56	— ⅛
129¾	106	127	122½		81,000,000	100	Prairie Pipe Line	$2Q	Jan. 30, 26	750	125¼	126¾	125	126¾	+1¾
254	200	212	195		4,000,000	100	Solar Refining Co	$5S.A.	Dec. 19, 25	80	202	202	200	200	+ ½
103	63	74½	61½		10,000,000	100	Southern Pipe Line Co	$1Q	Mar. 1, 26	150	73	73	72	72½	+2½
197	139	197	157		20,000,000	100	South Penn Oil Co	$1.50	Dec. 31, 25	530	167	167	160	162	—6
47½	45	50	39¾		20,000,000	25	do new			600	41	41¼	41	41¼	—1¼
84	50	56	52½		3,500,000	100	South West Pa. Pipe Line	$1Q	Dec. 31, 25	250	55¾	56	55¾	56	+2
		58¾	52¾	(sh)	15,000,000	N.P.	S. O. California (new)			34,000	55¼	56⅛	53⅞	55¾	0
70¾	59½	70½	61⅝	$	223,756,258	$25	S. O. Indiana	62½cQ	Mar. 15, 26	21,300	63⅞	65	63¼	65	+ ¾
46	30⅛	36½	29½		8,000,000	25	S. O. Kansas		June 16, 24	2,900	31	32	30⅞	31⅜	+ ⅜
137	114¾	134⅜	108		16,864,434	25	S. O. Kentucky	$1Q	Mar. 1, 26	1,700	118¾	122½	118	122½	+1¼
$70	$31	$54	$06		3,000,000	100	S. O. Nebraska	$5S.A.	Dec. 19, 25	70	$31	$35	$30	$35	+5
48⅝	40¼	47¾	31½		227,535,300	25	S. O. New York	35cQ	Mar. 15, 26	16,200	33	35½	32½	35	+2⅛
369	338	362	328		14,000,000	100	S. O. Ohio	$2½Q	Jan. 1, 26	110	337	337	333	333	—2
123	116	118½	117		7,000,000	100	do pfd	$1¾Q	Mar. 1, 26	10	117¾	117¾	117¾	117¾	0
27	12	23	15½		1,722,931	25	Swan-Finch Co		Nov. 1, 19	250	20	20	19	19	+3½
109½	80⅛	109¼	98		61,919,950	25	Vacuum Oil Co	50cQ	Mar. 20, 26	8,900	99⅝	102⅜	98	102⅜	+3⅜

Borne Scrymser $2 extra April 15 $4 extra Oct. 15 ‡Vacuum 50c extra Mar. 20, June 20, Sept. 19 Dec. 19 Dec 19 special $1 Dec 19 S.O. Neb. $10 extra Dec. 19 special $1 Dec. 19 S. O. Neb. $10 extra Dec. 19 Ohio Oil 50c extra Dec. 31. Chesebrough 62½c extra Dec. 29. Buckeye P.L. 50c extra Mar. 15. National Transit 50c extra Mar. 15.

Borne-Scrymser Profits Larger in 1925

CLEVELAND, March 15.—Statement of the Borne-Scrymser Co. as of Dec. 31, 1925, indicates net profits of $229,949 in 1925 or $22.99 on each $100 share. The company paid $14 a share dividends. In 1924 the indicated net profits averaged $14.77 a share, and in 1923, $13.10 a share.

E. H. Hinckley has been elected a director in place of Benjamin L. Armstrong who resigned. Mr. Hinckley also was elected a vice-president. Philip C. Meon, who was secretary, was elected treasurer and E. F. Strubel was elected treasurer.

Balance sheets of Borne-Scrymser as of Dec. 31 of the last two years compare:

ASSETS	1925	1924
Real estate, plant, etc.	$ 550,581	$ 531,556
Less depreciation	187,060	165,843
Net property value	$ 363,521	$ 365,713
Merchandise	471,431	391,727
Notes, acct's rec.	197,348	226,451
Cash	126,881	98,765
Other investments	610,158	599,420
Prepaid items	664	240
Total	$1,770,003	$1,682,317
LIABILITIES		
Capital stock	$1,000,000	$1,000,000
Accounts payable	61,576	63,666
Accrued expenses	756	1,391
Reserves	78,000	77,538
Surplus	629,671	539,722
Total	$1,770,003	$1,682,317

Foreign Opportunities

19220.—**High grade lubricating oil,** Budapest, Hungary, agency.

19221.—**Gasoline and lubricating oils,** Oruro, Bolivia, agency.

19237.—**Gasoline, kerosene and lubricating oils and greases,** West Africa, purchase.

19130.—**Gasoline,** 200 to 300 barrels, Mazagan, Morroco, purchase.

19139.—**Kerosene and lubricating oils,** Batavia, Java, purchase.

Cleveland Stock Market

	Par	March 12 Bid	Asked	Last Sale
Canfield Oil Co.	$100	.....	109	108
do pfd.	100	97	100	100
Fred G. Clark Co.	10	2¼	.....	4
National Refin. Co.	25	38¾	40	38¾
do pfd.	100	129	135	129½
Paragon Refin. Co.	25	7½	.....	7½
do pfd.	100	.....	68	67

x–Exdividend

Oil Dividends

	Amt.	Payable	Stock of Record
Mountain Prod. q	20c	Apr. 1	Mar. 15
do extra	40c	Apr. 1	Mar. 15
Salt Creek Cons. q	15c	Apr. 1	Mar. 15
Sterling Oil q	10c	Apr. 5	Mar. 25
do extra	10c	Apr. 5	Mar. 25
Warner-Quinlan q	50c	Mar. 31	Mar. 15

New York Bonds

Week Ending March 12

	High	Low	Last	Ch'ge
Amer. Rep. Cor. Deb. 6s	99¼	99⅛	99⅛	+ ⅛
Associated Oil gold 6s	103	102½	102½	0
Atlantic Refg. deb 5s	100½	100⅛	100½	+ ⅛
Barnsdall Corp. 6s	100¼	100	100¼	— ¼
Petrol sf 6½s	104	103½	103⅞	— ⅛
Empire Gas & F 7½s	102½	102	102⅜	+ ⅛
Gen. Asphalt 6s	105	105	105	0
Humble Oil & R 5½s	102⅜	101¾	102	+ ¼
Mid-Cont. Pet. 6½s	103	102⅜	103	+ ¼
Pan-Amer. P & T 7s	106	105¾	106	0
Pan-Amer. P & T 6s	107	105⅞	106½	+ ⅛
Pierce Oil deb 8s	106⅝	103⅜	106⅝	+1
Producers & Refnrs. 8s	110½	110⅛	110½	+ ⅛
Sinclair Con. Oil col. 7s	96¼	94⅝	96	+1⅜
SinclairCon.Oilcon.6½s	90¼	89¾	90¼	+ ¼
Sinclair Con. Oil 6s	111½	109	109½	— ¼
Sinclair Crude Oil 6s	100¾	100⅛	100⅜	— ⅛
Sinclair Pipe Line sf 5s	90⅛	89⅛	90	0
Skelly Oil 6½s	120½	115	118	— ½
Union Oil of Calif. 6s-A	105½	105⅛	105⅛	+ ¼
Union Oil of Calif. 5s-B	.....	.....	.....	.....
Union Oil of Calif. 5s-C	98	96¼	97½	+ ½

New York Curb Bonds

Week Ending March 12

	High	Low	Last	Ch'ge
Atl. Gulf & W I 5s	71⅛	70¼	71	—1
Cities Service 6s	93¾	93⅛	93⅛	0
Cities Service 6s N	93⅞	93⅛	93⅛	+ ⅛
Cities Service 7s "C"	130½	129⅛	130½	+2⅛
Cities Service 7s "D"	103⅞	102⅞	103⅜	+ ⅛
Galena S. O. 7s	102⅜	102¼	102¼	0
General Pet. 6s	101⅜	101½	101⅜	0
General Pet. 5s	95½	93⅝	95⅛	+1½
Gulf Oil 5s	100	99⅜	100	+ ⅜
Gulf Oil 5½s '27	101⅜	101¼	101⅜	0
Gulf Oil 5½s '28	101⅜	101	101⅜	0
Ind. Oil 6½s '31	99	98¼	98¼	— ⅝
Pan Amer Pet 6s '40	102	101½	101⅜	+ ⅛
Pure Oil 6½s	103¼	103	103¼	+ ¼
S O N Y 6½s	105⅞	105⅜	105⅜	— ⅜
Sun Oil 5½s	99¾	99½	99¾	0
Tidal Osage 7s	104½	104⅛	104⅛	— ⅜
Trans. Cont. Oil 7s	94	93½	93⅜	+ ⅜
United Oil Prod. 8s	39⅜	31	39⅜	—2⅛
Vacuum Oil 7s	104	104	104	0

New York Curb Market

1925 High	1925 Low	1926 High	1926 Low	Par Value	Stocks	Transactions week ended Mar. 12 Sales	First	High	Low	Last	Ch'ge
11¼	2⅛	14½	7⅛	....	Amer. Maracaibo	8,800	7⅞	9⅝	7⅜	9⅝	+1⅝
8⅜	5	6¾	5¾	$10	Arkansas Nat. Gas.	.....	.....	.....	.....	.....	.....
.....	.....	19¾	16⅝	N.P.	Beacon Oil	3,500	17⅜	17⅜	17⅜	17⅜	— ⅛
47½	38	.....	.....	$25	British-American	.....	.....	.....	.....	.....	.....
10¾	2¾	22⅞	10	25c	Carib. Syndicate	42,100	15⅜	17⅜	14½	17⅛	+1¼
43	35	42⅛	37⅜	$20	Cities Service	30,900	41	42½	40¾	42	+ ¾
85⅜	80¼	84	83	100	do pfd.	2,900	83	83¾	83	83½	+ ½
8	7¾	7¾	7¾	10	do pfd. B	200	7¾	7¾	7¾	7¾	0
21¾	17¾	20⅛	19	10	do bankers' ah.	100	20⅜	20⅜	20⅜	20⅜	+ ⅜
2¾	.60	3½	2	N.P.	Colombia Syndicate	35,100	2½	2⅞	2¾	2⅞	+ ⅜
15	8¼	15¾	11	N.P.	Creole Syndicate	2,200	11⅜	11¾	11¾	11⅝	+ ⅛
12¼	5	7⅜	2¾	N.P.	Crown Central	7,200	3¾	3¾	† 2¾	3½	— ¼
7	2	3¾	2	N.P.	Derby Oil & Ref.	200	2½	2½	2½	2½	+ ⅛
27	10½	14⅞	13½	N.P.	do pfd.	.....	.....	.....	.....	.....	.....
6	1⅜	7	4	N.P.	Gibson Oil	20,200	4⅞	5⅜	4½	5⅛	+ ⅜
3¾	1⅜	2	.87	N.P.	Gilliland v.t.c.	.....	.....	.....	.....	.....	.....
98¾	63½	93¾	82⅜	$25	Gulf Oil Corp.	4,100	85	86	85¾	85¾	+ ¼
5⅞	2½	3¾	2¼	N.P.	Kirby Petroleum	1,300	2⅞	2⅞	2½	2½	0
23¾	17⅞	25⅞	17½	N.P.	Lago Oil & Trans. A	73,300	20¼	21½	19¾	20⅞	+ ¾
11¾	4⅝	15	9	N.P.	Lago Petroleum	5,500	12	12	10	11	0
13	6	12¼	9	N.P.	Leonard Oil & Dev.	16,400	9¾	10⅜	9¾	10¾	— ⅛
25⅞	18	25¾	22½	N.P.	Lion Oil Refining	3,300	23⅛	25	†22½	25	+ ½
4¼	1¾	.....	.....	N.P.	Marland of Mexico	.....	.....	.....	.....	.....	.....
5¾	.56	5½	3¾	$10	Mexican-Panuco	21,300	4⅜	4¾	4⅛	4¾	+ ⅜
2	1	1¾	1⅜	1	Mountain & Gulf	200	1⅝	1⅝	1⅝	1⅝	0
26¼	18¾	26	23¾	10	Mountain Prod.	15,200	24⅞	25½	24⅜	25½	+ ⅝
6¾	3¾	6¾	6	5	New Bradford	3,500	6⅜	6½	6⅜	6½	+ ⅛
24¾	16½	5	4	10	New England Fuel	.....	.....	.....	.....	.....	.....
19¾	6½	17	11½	1	New Mex. & Ariz.	4,300	13	13¾	†11½	13¾	+1¼
12½	8½	17	11⅝	25	New York Oil	400	12¾	12¾	12¾	12¾	— ¼
37	14	36	34¼	25	Ohio Fuel Corp.	.....	.....	.....	.....	.....	.....
2½	.90	2¾	1¾	N.P.	Peer Oil Corp.	7,100	1¾	1½	1⅝	1½	0
28¼	16	22¾	19½	$10	Pennok Oil	1,500	20⅞	21¼	20⅜	21¼	+1¾
44½	16	21½	14½	25	Red Bank Oil	2,300	20	20	19⅜	20	+1½
33⅜	19	24¾	14½	N.P.	Reiter-Foster	6,600	17⅜	20½	17⅜	18½	+ ¾
9½	3½	7½	5¾	N.P.	Ryan Consolidated	800	31	6¾	6½	6¾	+ ⅛
9¾	6¾	10	8⅜	$10	Salt Creek Cons.	200	9	9	9	9	— ⅛
35	24	36	29	10	Salt Creek Prod.	5,600	31⅞	32	31¼	32	+ ⅛
3⅞	1	2¼	1⅜	5	Savoy Oil	500	2	* 2¼	2	2¼	+ ¼
13¾	9	10	9	10	Tidal Osage	.....	.....	.....	.....	.....	.....
10⅞	8	10	9	10	do non-voting	.....	.....	.....	.....	.....	.....
4⅜	1¾	8	4¼	5	Venezuelan Pet	21,900	6	7¼	5⅜	7	+ ¾
.....	.....	29¾	24¾	.....	Warner-Quinlan w.i.	1,500	27⅛	27⅜	26⅜	27	0
31¼	22⅛	27⅝	22	N.P.	Wilcox O. & G. new	1,400	25	25	24⅛	25	0
7	3⅞	6	5¼	N.P.	Woodley Petroleum	.....	.....	.....	.....	.....	.....

Pittsburgh Stock Exchange

1925 High	1925 Low	1926 High	1926 Low	Par Value	Stocks	Transactions Week Ended Mar. 12 Sales	First	High	Low	Last	Ch'ge
8¼	5¼	7	5¾	$10	Arkansas Nat. Gas.	770	5⅞	6	x5¾	6	0
73¼	69¼	.....	.....	N.P.	Columbia Gas	.....	.....	.....	.....	.....	.....
18	14½	17	15	$10	Devonian Oil	330	15½	15½	15	15	— ½
112¾	105¾	114	112	$100	Duquesne Lt. 7s pfd.	50	113	113	113	113	+1
95	90	.....	.....	100	Fayette County Gas.	.....	.....	.....	.....	.....	.....
.....	.....	10	7	....	HoustonGulfGas(w.i.)	400	7¾	7⅞	7¾	7⅞	+ ⅛
55	32½	56½	51	25	Lone Star Gas	2,081	52⅛	53¾	52	52¾	+ ⅜
7	3¾	6½	6	....	do Rights	.....	.....	.....	.....	.....	.....
37¼	31	36½	34½	25	Ohio Fuel Corp.	1,451	35	35½	34¾	35	0
34	26	34	31	25	Oklahoma Nat. Gas.	830	31¼	32	31	32	+1
8¾	5	5¾	4¾	5	Pittsburgh O. & G.	50	4¾	4¾	4¾	4¾	0
9¾	6	10	8¾	10	Salt Creek Cons.	.....	.....	.....	.....	.....	.....
13¾	8½	10	9	10	Tidal Osage	.....	.....	.....	.....	.....	.....

Pittsburgh Curb Market

1925 High	1925 Low	1926 High	1926 Low	Par Value	Stocks	Transactions Week Ended Mar. 12 Sales	First	High	Low	Last	Ch'ge
20	18½	.....	.....	....	Central Ky. Gas	.....	.....	.....	.....	.....	.....
2½	.60	3¾	2½	$ 5	Colombia Synd.	100	2⅛	2⅛	2⅛	2⅛	+ ⅛
.60	.15	15	15	5	Duquesne Oil	.....	.....	.....	.....	.....	.....
9	5½	.....	.....	10	Forest Oil	.....	.....	.....	.....	.....	.....
92¾	64	91½	90	25	Gulf Oil Corp.	.....	.....	.....	.....	.....	.....
.....	.....	10	6½	....	Houston Gulf Gas.	.....	.....	.....	.....	.....	.....
12½	8¾	12	9⅝	N.P.	Leonard Oil & Dvlp.	.....	.....	.....	.....	.....	.....
2¾	1¾	.....	.....	1	Oklahoma Eastern	.....	.....	.....	.....	.....	.....
¾	⅜	.....	.....	....	Okla. Eastern rts.	.....	.....	.....	.....	.....	.....
1¾	1⅛	.....	.....	....	Okla Eastern ex-rts.	.....	.....	.....	.....	.....	.....
.47	.20	.20	.20	10	Omar O. & G	.....	.....	.....	.....	.....	.....
.....	.....	1¾	1¾	....	Pittsburgh Oil Dev.	500	1¾	1¾	1¾	1¾	0
27½	25	33	27	10	Plymouth Oil	1,165	28½	29½	28	29¼	+ ⅜
7	3	4	3	5	States Oil	100	3½	3½	3½	3½	+ ⅜
4	1⅞	3⅛	2⅛	$ 1	Texon Oil & Land	4,900	3	3	2¾	2⅞	+ ⅛
11	9	9½	9¼	10	Tidal Osage	.....	.....	.....	.....	.....	.....
.....	.....	42¾	42	N.P.	Waverly Oil Wks. A	100	42	42	42	42	0

*New High ‡New Low xEx Dividend

J. P. Howe Chosen Head of A. O. M. A.

Staff Special

CHICAGO, March 15.—At a meeting of the board of directors of the American Oil Men's Association in Chicago on March 9, J. P. Howe of Kansas City was elected president of the organization for 1926, succeeding A. J. Callaghan head of the American Oil Corp., Jackson, Mich., whose term had expired.

Mr. Howe is vice president of Manhattan Oil Co. of Kansas City, in charge of distribution. Mr. Callaghan's two terms as president of the organization were over in March. He had accepted the office the last time under pressure of his friends and with the agreement that he would be relieved of the duty at the end of another year. There is a constitutional provision in the A. O. M. A. that any office or place on the directorate may be filled by the board. Mr. Callaghan was prevailed upon to retain a place on the board of directors. A. T. Locke of Chicago also was placed on the board of directors at this meeting.

Arrangements were made at this meeting for the next convention of the A. O. M. A. which will be held June 9 and 10 of this year at a place to be selected later. It was decided that this summer's convention will be unique in character. It will be a strictly business meeting of members to talk over their problems and work out means of combatting their mutual obstacles jointly. There will be no equipment exhibition and the entertainment features of the meeting will be reduced to a minimum.

In view of the secretary's state of health and the work accomplished in the way of settling local disputes in various communities recently the board voted a month's leave of absence from duty for him. He will not be at the association's offices at 624 South Michigan Ave., Chicago, at any time in April. Mr. James ventures the prediction, unofficially, that he will be at his home in Kansas City most of the time, spending a good portion of his daylight hours on the golf course in compliance with the recommendation of his physician.

All N. P. M. A. Exhibit Space Sold

CHICAGO, March 15.—All display booths for the equipment exhibit at the spring convention of the National Petroleum Marketers' Association have been sold. This announcement was made this week by Eva Arnstein, secretary of the N. P. M. A. The regular spring meeting will be held April 6, 7 and 8 at the Congress Hotel, Chicago. Miss Arnstein is proud of having disposed of all available exhibition spaces to equipment manufacturers without solicitation, by sending out only one letter of announcement to the organization's regular supporters. The sale was completed a full month before the date of the meeting.

THE OIL INDUSTRY EXCHANGE

Positions Wanted

Construction Engineer. Sixteen years experience on refineries, oil depots, power houses, etc. in America, Mexico and Japan. Technical education. Location immaterial. Available immediately. Box 521.

Mechanical Engineer. Seven years experience, three years efficiency work in refinery with successful results, technical graduate, location immaterial. Box 538.

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4 Jobbing Salesmen

Successful men with clientele to sell general lubricating line of well known refinery to jobbing trade in Michigan, Missouri, Minnesota and Indiana. Experienced men having intimate knowledge of above territories will be considered. Give full details of experience and salary expected.

Box 548

Salesmen—Oil, Grease, Paint and Roof Cement. Quality line at prices that eliminate competition. Permanent connection with exceptional possibilities. Old established, square dealing, aggressive organization. Weekly and monthly settlement in real money, not promises. Auto furnished after qualifying. If $60.00 weekly interests you to start give age, experience and references. P. O. Box 1735, Pittsburgh, Pa.

Construction Engineer

needed. He must be a man who has:

1—A Technical Degree (Mechanical)

2—Oil Refinery experience.

3—Ability to direct construction and maintenance work of an Oil Refinery, and handle a large body of men.

We should be glad to have you write us giving an outline of training, experience and personal background, and enclosing a small photograph.

Room 916
342 Madison Ave.
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For "Position Wanted" advertisements—5 cents per word. Minimum cost $1.00. All other classified advertising—10 cents per word. Minimum cost $3.00. Advertisements set in special type or with border—$4.00 per column inch. Copy must reach us not later than Friday preceding date of issue.

All advertisements carried on this page are payable in advance.

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WHERE JOBBER AND REFINER MEET

My office is nothing more than a clearing house for Seller and Buyer of

Petroleum Products

DALE W. MOORE

532-533 Mayo Bldg., Tulsa, Okla.
Telephones: 3-4177 and 3-4178.
L. D. 136

Wanted—To Buy

Grease Formulas Wanted

Drivers Journal Compound, Rod Cup Grease, 400° F. Brick Lubricant, Smooth Alkali No. 3 Cup grease that can be heated to 300° F. and retain original consistency after cooling.

E. M. Loehrs, 141 Hillside Rd., Elizabeth, N. J.

For Sale

For Sale

GASOLINE AND OIL STORAGE plant. Exceptionally well adapted for gasoline motor oil and fuel oil distribution. Area about one acre. Elevated siding for gravity discharge. Gasoline storage 50,000 gal. Located at center of Philadelphia, Penna. Address

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Used Equipment—Sell It!

National Petroleum News will bring you into contact with buyers. Why not look over the equipment of your company, jot down what you have no use for and send in a classified advertisement.

Or, if you want to buy used equipment write us telling what you desire.

The Oil Industry Exchange is read by over 12,500 individuals each week. Many of these have what you want to buy or are looking for the equipment you wish to sell.

Advertisers having box numbers should be addressed in care of National Petroleum News, 817 Huron road, Cleveland, Ohio, unless otherwise specified.

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